

## **Appendix M**

Note: These plans have been included for reference only. Inclusion neither expresses nor implies operational liability by Kiewit-General.

### Contents:

M1-Installation and Removal of the Gate

M2-Flooding and Dewatering of the Basin

## **M1- Installation and Removal of the Gate**



KIEWIT- GENERAL, A JOINT VENTURE  
SR 520 PONTOONS

WORK PLAN #

## **Basin Gate Removal / Staging / Re-Installation**

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### **OPERATION OVERVIEW**

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This work plan includes:

- 1) Remove the gate assembly (all 3 truss sections and gate catwalk).
- 2) Staging gate trusses on land during floatout.
- 3) Replacing the gate assembly between the bulkhead jambs to lock and seal the basin prior to draw down.



# CASTING BASIN GATE PREPARATION

## PRIOR TO FLOAT OUT



1. Install and test the hydraulic cylinders by cycling back and forth without moving the gate.

*\*inspect for hydraulic leaks in the system*

2. Install shackles and rigging on each truss and stage on float North of the gate.

- Layer the rigging on the float so that top gate section (T3) rigging is on top of T2 and T1.
- Tie each wire rope to end of the float using poly rope so that the rigging will not fall off the float.
- To keep rigging sorted, use different colored tape on each end for T1, T2 and T3.

3. Install 50 ton MatJack airbags under the cross-members at grid lines #3 and #7, adjacent to the bearing pads.





# CASTING BASIN GATE PREPARATION PRIOR TO FLOAT OUT

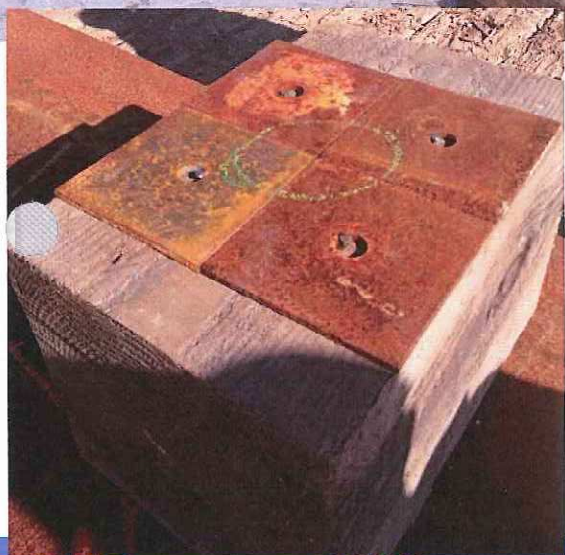


4. Remove all of the vertical tie rods.
  - 100% tie off required when removing the rods. Tie off using retractable and beam strap looped around the top truss member of the catwalk.
  - Tie wire the rods and nuts in bundles to the deck of the catwalk.
5. Back off the gate screw jacks at both East and West jambs close to high tide prior to float out day.





# CASTING BASIN GATE PREPARATION PRIOR TO FLOAT OUT



6. Lay out the 40 x 100 reinforced poly, straw wattles, and plywood walkways per the containment layout drawing in this work plan.
  - See Tab 5 for drawing.**All of the gate cleaning area must be sufficiently contained so no process water may escape. See the letter in this workplan about the Cycle 3 process water discharge.**
7. Set up the dunnage per the layout drawing in this work plan.
  - Using plywood, wood blocks, and metal plates, level out each location where the gate feet will touch down. Have survey verify each pad elevation and add or subtract shims as needed.
  - Blocking needs to be high enough to clear the shear keys (6").
  - For T1, the blocking needs to be at the edge of the beam for the face overhang on the gate.
8. The day prior to cleaning, stage the pressure washers, 3" pump, light plant and scissor lifts per the containment layout drawing.

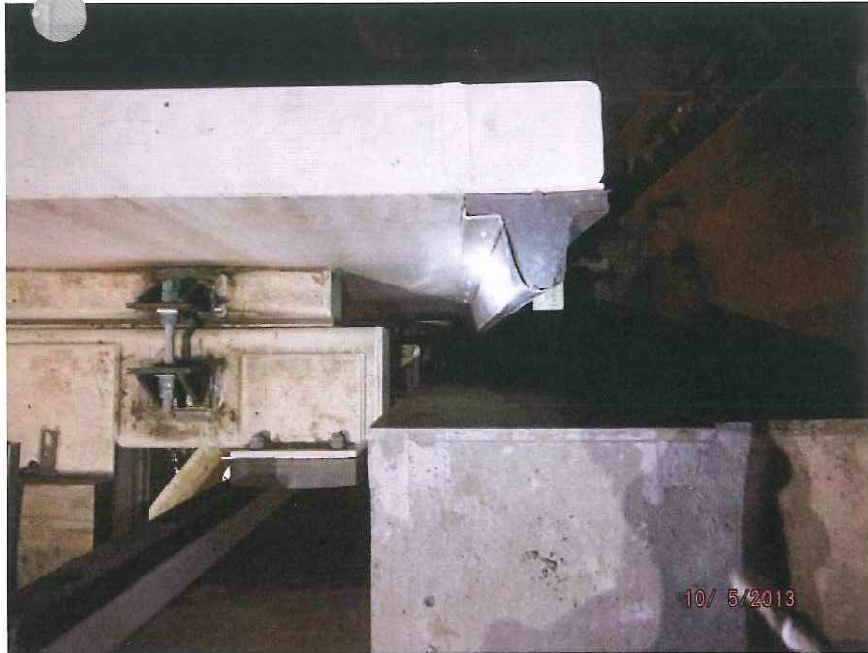


# CASTING BASIN GATE PREPARATION PRIOR TO FLOAT OUT





# CASTING BASIN GATE REMOVAL



1. Flood Casting Basin.  
(Refer to Work Plan # FO – 01)
2. Remove both catwalk sections and place on 4x4 dunnage in the road North of the gate cleaning area.
3. Exercise 20 ton hydraulic rams to move the gate assembly the full 7.5" to provide room for the gate guides. Fully retract rams after move.



4. Install the gate guides on the East and West jambs.  
(Refer to sheets SJ28 & SJ25)
  - If necessary to stand outside of railing or on the gate, the person must be 100% tied off.





# CASTING BASIN GATE REMOVAL



5. A 2 person crew on the float will rig each section of the gate.

- Place the rigging for the front of the gate on the hook first, then the rear. Make sure when tensioning that the rigging does not tangle or hop the other lines on the hook.
- Tension the rigging to remove slack laying on float, then untie each wire rope from the float.
- Use one person on each jamb to control the gate using long ropes attached to the bottom truss chord.



6. Remove truss T3 and place on dunnage. (see pick plans)

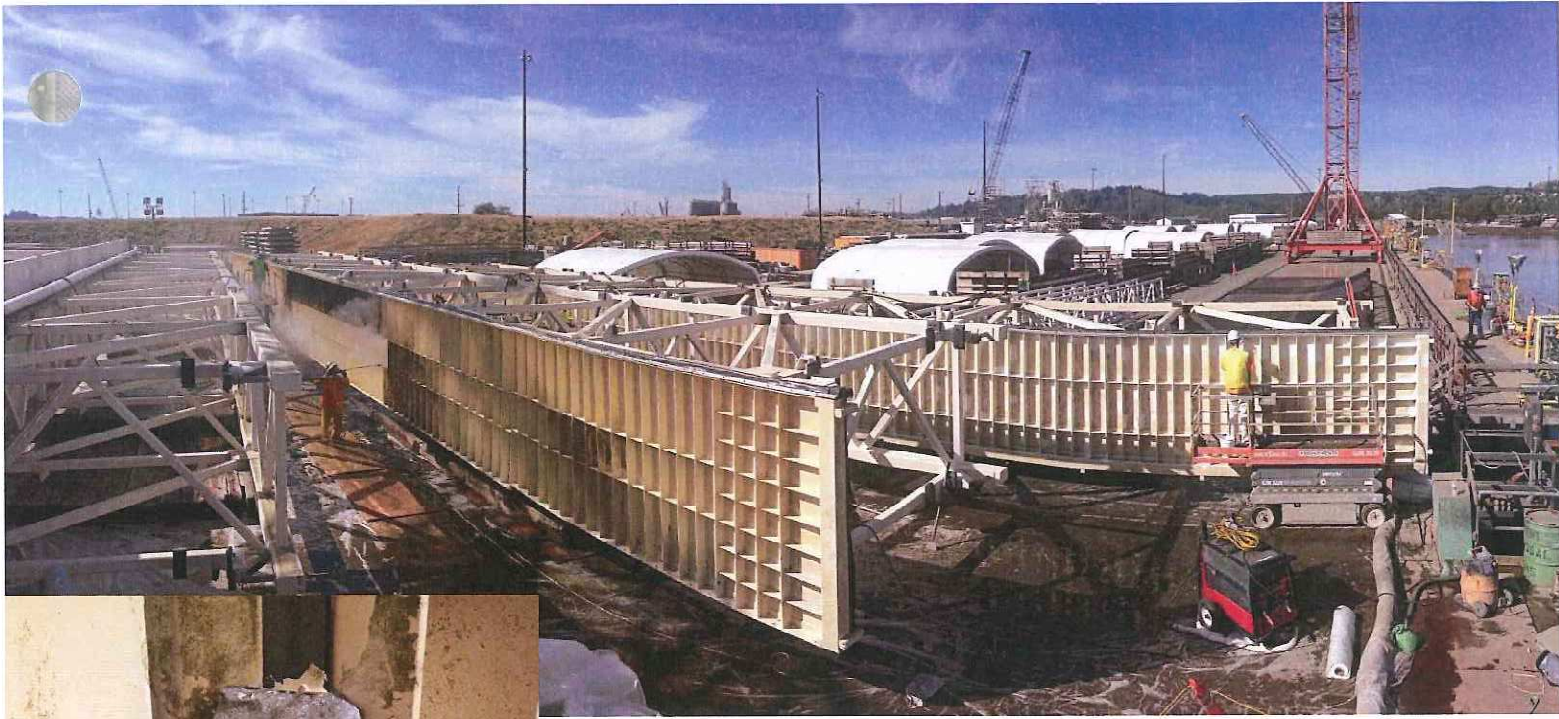
- Leave the rigging attached to the gate sections draped over the back of the truss.
- Push rigging underneath truss to allow scissor lift to drive between trusses.
- Do not let seals drag on the wall while lifting each truss.

7. Follow the same procedure to remove and unrig sections T2 and T1.

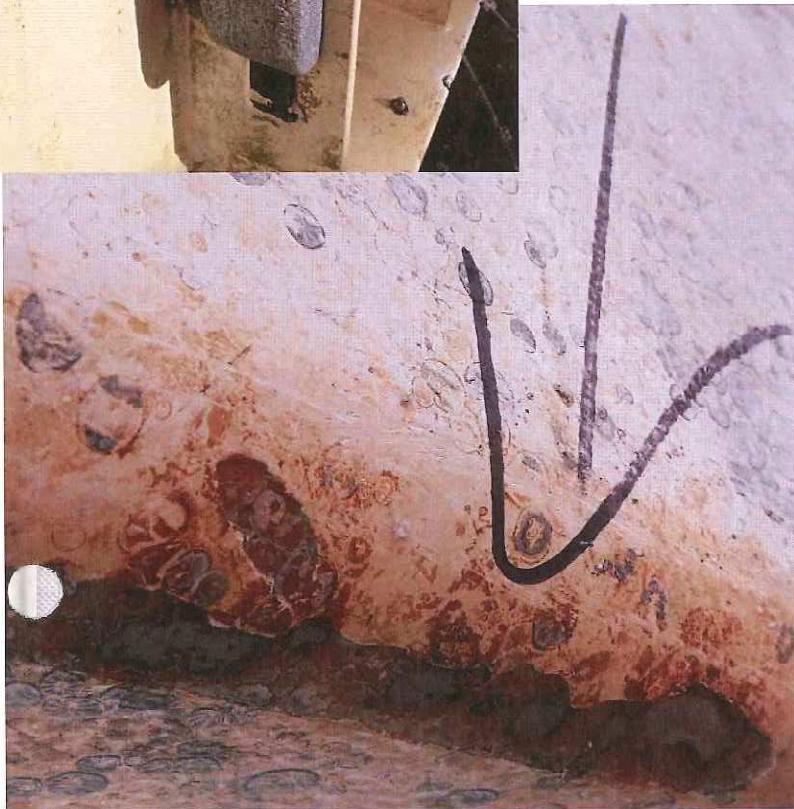
8. T1 must be placed as far South on the I-beam dunnage as possible to allow the bottom gate seal to be inspected and repaired.



# CASTING BASIN GATE REMOVAL



9. When all gate sections are picked, use work skiff to move the float to the dock outside the basin and tie it up.
10. Inspect all seals for permanent damage and deformation and repair as necessary.
11. Inspect the gate epoxy coating for corrosion and repair as necessary per the gate cleaning work plan.
12. Inspect zinc anodes and replace as necessary.





## CASTING BASIN GATE INSTALLATION



- Divers will swim the sill area prior to replacing the gate, checking for debris and excess sedimentation along the seal bearing surface and truss bearing plates.
  - Make sure that there is a work skiff in the basin before the gate is installed.
1. Verify gate guides were not removed. Reinstall if necessary.
  2. Position 1 spotter at each jamb such that the UHMW guide pads and the seal can be monitored during setting.
  3. Lift, position, and lower T1 to rest on the casting basin slab. The diver will swim to each shackle and unrig it from the gate. The rigging can then be put into a job box for storage.





4. Lift and position truss T2 over T1. Lower T2 to engage the horizontal shear keys on T2L with horizontal shear keys on T1U.

5. To unrig the crane from the truss section, utilize the ladder on each basin jamb to the level of the top of the truss. Hook into the horizontal lifeline before leaving the ladder platform.



6. Walk along the top of the gate section to unrig the shackles.

7. Repeat step 4 for gate section T3.

8. Lift and position each catwalk section onto truss T3.

9. Remove the gate guides from the East and West jambs.

10. Extend the basin side hydraulic rams until grid line A is located 7.5" North of the perimeter seal plate on both jambs.

This must be done at or near low tide to facilitate dewatering and to ensure the water level inside the basin does not exceed the water level outside the gate.



## CASTING BASIN GATE INSTALLATION



11. Make sure the perimeter seal along both jambs is in contact with the jamb surface.
12. Begin dewatering and fish handling activities. Resume gate installation after the basin is completely dewatered. Leave the hydraulics extended with pressure on the gate.
13. Install and tension the vertical tie rods along both grid lines A & B.

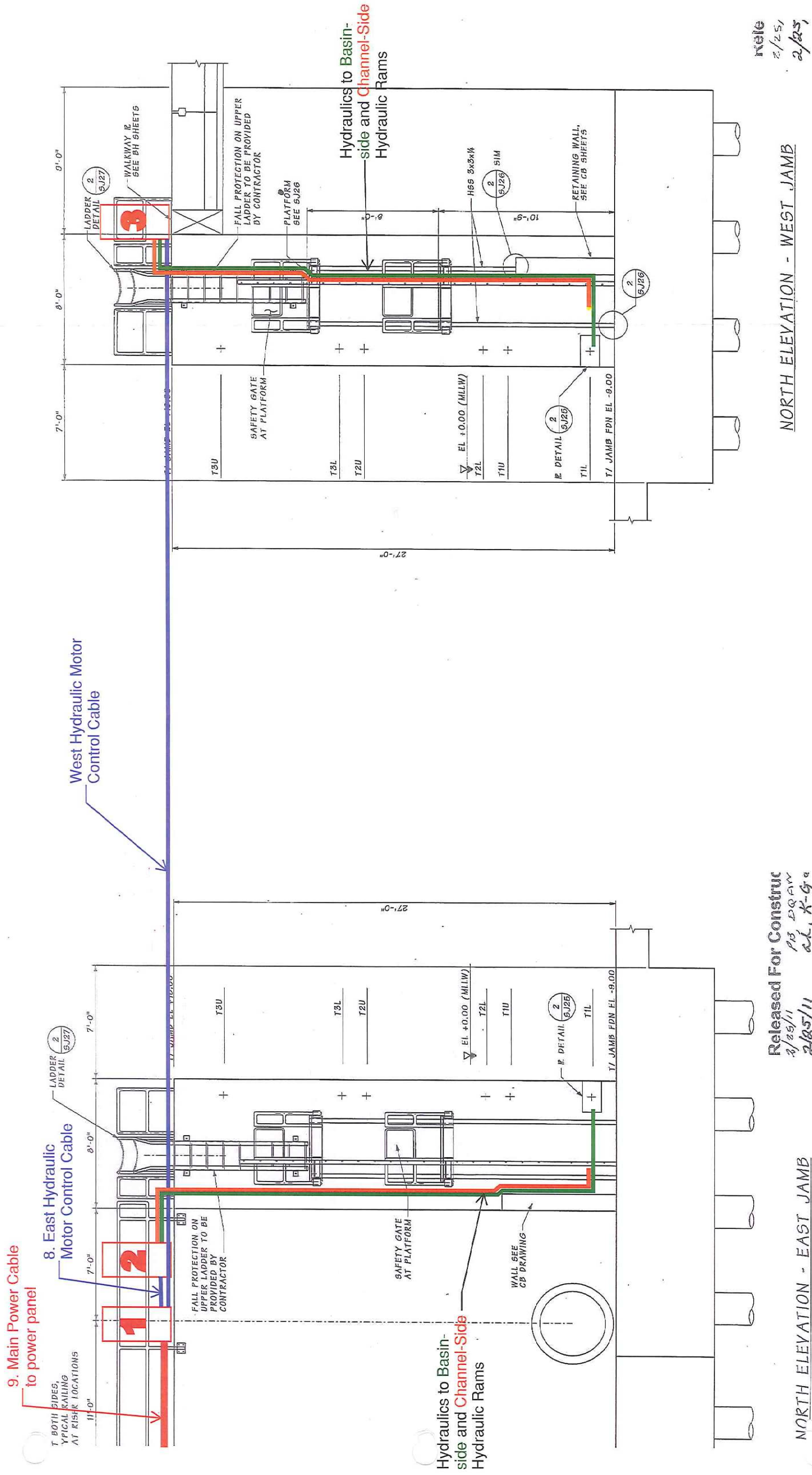


14. Extend the screw jacks against the basin-side of the jambs and tighten to lock position.
15. Remove hydraulics and store the quick connect ends in a bucket of hydraulic oil in the gate connex. The bucket and hydraulic ends must also be in secondary containment. (black tub)
16. Coat the cylinder connections with WD-40 or similar lubricant.

# Gate Hydraulic System

5. Hydraulics to channel-side jacks
  - Route pair of hydraulic hoses through the 3" conduit poured into the gate jamb
  - Orange lines on drawing
6. Hydraulics to basin-side jacks
  - 2 hoses per hydraulic cylinder
  - Green lines on drawing
7. West Hydraulic Motor and Control Cables
  - Blue connector and round metal pin connector.
  - Blue line on drawing
  - Route over the top of the gate on basin side of the catwalk structure.
8. East Hydraulic Motor and Control Cables
  - Blue connector and round metal pin connector
  - Blue line on drawing
9. Main Power Connector
  - Red power coupler





Released For Construct  
2/25/11 P3 EQW  
2/25/11 AL, K-G

NORTH ELEVATION - EAST JAMB

rele  
2/25,  
2/25,

NORTH ELEVATION - WEST JAMB

## **M2 – Flooding and Dewatering of The Basin**





KIEWIT- GENERAL, A JOINT VENTURE  
SR 520 PONTOONS

WORK PLAN # **SFO - 01**

## CASTING BASIN HYDRUALIC CONTROL

### OPERATION OVERVIEW

This work plan includes:

1. Setting and removing the HCS fish screen.
2. Exercising the sluice gates and flooding the casting basin.
3. Dewatering the basin post - floatout.





Kiewit - General, A Joint Venture  
SR 520 Pontoons  
Job #14285

PLAN COMPLETED BY:		Kaleb Neu	REVIEWED / APPRVD BY:		Matt DiCrescentis
JOB:		#323-14285	OPERATION:		Clean / Prep / Flood / Dewater Basin
OPERATION LOCATION:		Basin			
SCOPE OF WORK:		Setting/Removing of the HCS Fish Screen, Exercising the sluice gates and flooding the casting basin, and Dewatering the basin post float out.			

COST CODES & BUDGET		DESCRIPTION	CODE	QTY	UNIT	MM/UNIT	TOTAL MM
TOTALS							

PRODUCTION GOALS (Financial Plan)		GOAL DESCRIPTION	MM/UNIT	ANTICIPATED MHR G/L
EQUIPMENT				

EQUIPMENT		MANPOWER		
DESCRIPTION	QTY	DESCRIPTION	QTY	QTY
Liebherr LR 1300		Operator		1
Work Skills		Bellman		1
		Pilebuck Foreman		1
		Pilebucks		2
TOTAL		TOTAL		

SUPPLIES		SPECIAL TOOLS		
DESCRIPTION	QTY	DESCRIPTION	QTY	QTY
		Godwin GSP 900 Pumps		6
		Variable Frequency Drives		6
		GHP250KW-R Trailer Mounted Generators		3
		SUBCONTRACTORS		

PM'S		SURVEY NEEDS (Attach Sketch)		
DESCRIPTION	QTY	YIELD	QTY	QTY
HCS Fish Screen	1		1)	May survey HCS Monopile at Superintendents discretion
Sluice Gates	2		2)	
			3)	
			4)	

FIRST RULE OF QUALITY: Right the First Time

QUALITY			POTENTIAL QUALITY ISSUES	
SPECIFICATION REQUIREMENTS			ISSUE	PREVENTION (Refer to Quality Analysis)
SPEC#	ITEM	TOLERANCES	TEST FREQ	
				Damage to sluice gates
				Damage to HCS Box
				Log Stop Gate
				Launch channel draft is ALWAYS greater than basin
QUALITY ANALYSIS COMPLETED BY:				

WORK SEQUENCE / OPERATIONAL PLAN  
Work Prior to Floatout

- 1) Install (2) access hatches on fish screen and verify all bolts are snug and secure
- 2) Install/Test (2) flow meters on HCS Box on north side. These should be placed at the approximate mirrored center of the intake pipes.
- 3) Rig & Fly each of the (6) 4000 GPM submersible pumps into the HCS sump house and make up flange connection to HCS discharge walkway.

Flooding the Basin

- 1) Divers to remove (2) cover plates on the 48" pipes (See dwg HS23)
- 2) Using the LR 1300, pick the screen from the SE corner of the basin and set on the monopile. (Refer to HS4, HS2, and Pick Plan)  
\*\*\*Note: Fish screen is self seating and sealing should not require diver assistance to set or remove\*\*\*
- 3) Rigging will remain with fishscreen, attach riggin to catwalk handrail via rope.
- 4) Perform a final sweep of the basin, ensuring all items have been picked up to north, working south to north. Perform pre-flood HP. See Quality.
- 5) Electrician to roll out cordage from SE power and hook to Sluice Gate #1 \*\*\*Warning: Power supply is 480V and cannot be live when connecting to sluice gate motor\*\*\*
- 6) Sluice gates is a time sensitive operation (Review Tide Chart In Schedule Section of this workplan), sluice gate opening size dependent on tide.
- 7) A superintendent or engineer shall be present during all sluice gate operations. Open sluice gate #1 as follows:  
A.) Read the Recommended Initial Sluice Gate Opening Chart on page #4 of the Casting Basin O&M Manual. Velocity of water shall never be over 0.4 fps.  
B.) Switch the motor to "Manual"  
C.) Using the hand crank, manually open the gate +/- 1 inch  
D.) Engage the motor by pushing the "Open" Button  
E.) Using the stem gauge window, shut down the motor at the recommended opening per the Casting Basin O&M manual.  
8) Open Sluice Gate #2 following the same steps process as above  
9) The sluice gates will need to be tended and as the tide level changes, refer to the opening chart in the Casting Basin O&M Manual.  
\*\*\* WARNING: 1.) AT NO POINT SHALL THE WATER LEVEL IN THE BASIN EXCEED THE WATER LEVEL IN THE LAUNCH CHANNEL\*\*\*  
\*\*\* WARNING: 2.) THE WATER LEVEL SHALL NOT EXCEED ELEVATION OF +2 PRIOR TO THE CASTING BASIN STOP LOG GATE REMOVAL \*\*\*

Dewatering Basin And Removing Fish Screen

- 1) Casting Basin Gate must be in place prior to closing sluice gates and beginning dewatering operation.
- 2) Roll out cordage from SE power service and hook up to Sluice Gate #1  
\*\*\*Warning: Power supply is 480V and should not be live when connecting to sluice gate motor\*\*\*
- 3) Close Sluice Gate #1 as follows:  
A.) Turn the motor to local  
B.) Using the hand crank, manually close the gate +/- 1 inch  
C.) Activate the motor by pushing the "Close" button. The motor will close the sluice gate automatically and shut off when the limit switch engages. Closing the gate must be completed by manually cranking the gate closed. To avoid damage to the gate, do not close beyond the 1/8" mark on the pedestal crank indicator.  
4) Close the second sluice gate following the same steps outlined above. TURN OFF POWER AT THE SOURCE PRIOR TO MOVING FROM GATE #1.
- 5) Roll up cordage and place in permanent storage
- 6) Dive team will waterblast interior of HCS box via door in side panel
- 7) Remove HCS Box slowly to allow water to drain, and stage to screen to inspect the interior for stray fish.
- 8) Using the softstart, power the pumps and begin discharging water from the basin. Draw the water down to the 30" of depth and shut down the pumps for fish handling.
- 9) After fishhandling is complete, finish the dewatering.
- 10) After basin is dewatered, remove pumps from the sump house and detach the 25' riser pipe.
- 11) Divers replace the covers on the outside of the 48" intake pipes.



REV 3/19/2012

PUMP RISER PICK POINT

FLANGE CONNECTION

PUMP ELEVATION DRAWING

EL. 18.00

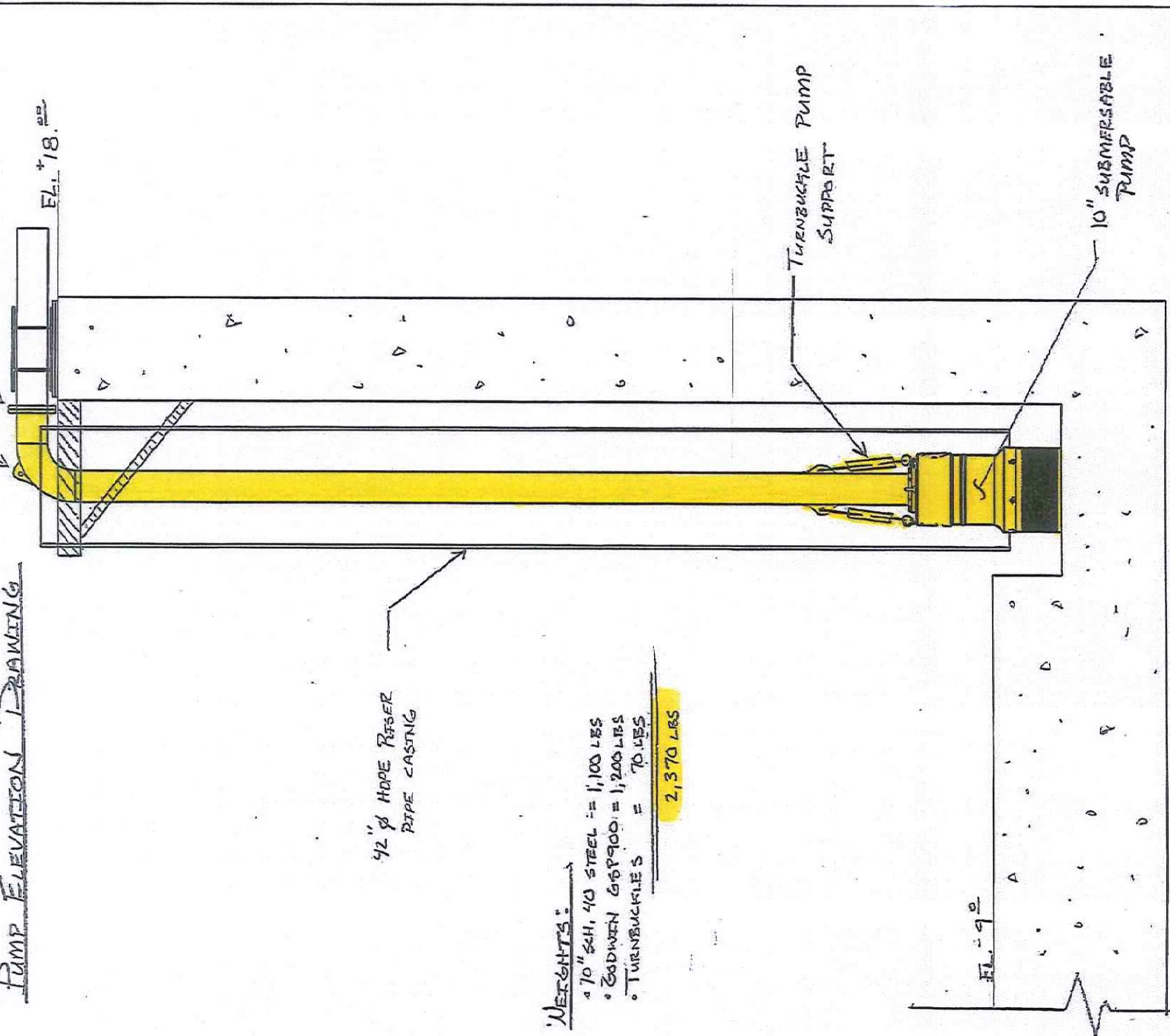
42" Ø HDPE RISER  
PIPE CASTING

WEIGHTS:  
• 10" SCH. 40 STEEL = 1,100 LBS  
• 20 DOWN 60 P900 = 1,200 LBS  
• TURNBUCKLES = 70 LBS  
**2,370 LBS**

TURNBUCKLE PUMP  
SUPPORT

10" SUBMERSIBLE  
PUMP

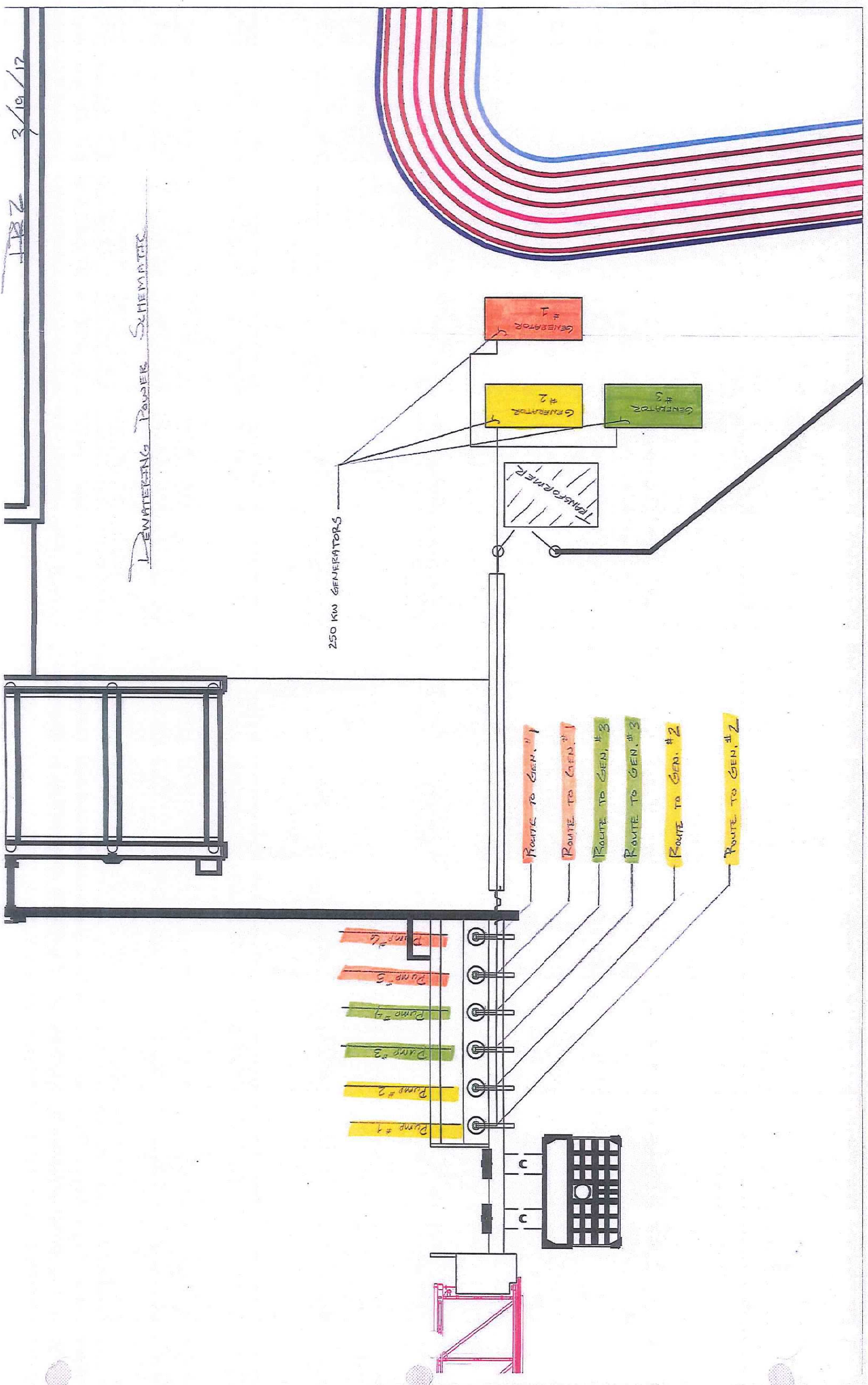
EL. 9.0





1122 3/19/12

DEWATERING POWER SCHEMATIC





GENERAL NOTES

- ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE PROVISIONS OF THE WASHINGTON STATE DEPARTMENT OF TRANSPORTATION'S "STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION," DATED 2008 WITH AMENDMENTS.
- DESIGN IS IN ACCORDANCE WITH THE PROVISIONS OF THE WSDOT BRIDGE DESIGN MANUAL LRFD (M23-50), LATEST EDITION, WASHINGTON STATE DEPARTMENT OF TRANSPORTATION.
- SEISMIC DESIGN IS IN ACCORDANCE WITH THE PROVISIONS OF THE 2009 AASHTO GUIDE SPECIFICATION FOR LRFD SEISMIC BRIDGE DESIGN.
- DESIGN IS IN ACCORDANCE WITH THE PROVISIONS OF THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRAFFIC OFFICIALS "AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS," 4TH EDITION, 2007, WITH 2008 AND 2009 INTERIM REVISIONS.
- DESIGN IS IN ACCORDANCE WITH THE PROVISIONS OF THE WASHINGTON STATE DEPARTMENT OF TRANSPORTATION'S "SR 520 PONTOON CONSTRUCTION DESIGN-BUILD PROJECT REQUEST FOR PROPOSAL", DATED AUGUST 24, 2009.
- DESIGN IS IN ACCORDANCE WITH THE PROVISIONS OF THE WSDOT GEOTECHNICAL DESIGN MANUAL (M46-03), LATEST EDITION, WASHINGTON STATE DEPARTMENT OF TRANSPORTATION.
- FALSEWORK SHALL BE CAREFULLY RELEASED TO PREVENT IMPACT OR UNDUE STRESS IN STRUCTURE.
- ALL EXTERIOR CORNERS AND EDGES SHALL HAVE A 3/4" CHAMFER AND ALL INTERIOR CORNERS SHALL HAVE A 3/4" FILLET.

VERTICAL DATUM

THE LOCAL PROJECT CONSTRUCTION VERTICAL DATUM - MLLW = 0.0 FEET. RELEVANT TIDAL ELEVATIONS ARE AS FOLLOWS:

TYPE	DESIGN PROJECT DATUM
FEMA 50 YEAR FLOOD	+14.90'
MHHW	+10.11'
MLLW	+0.00'
LOWEST OBSERVED TIDE	-3.50'

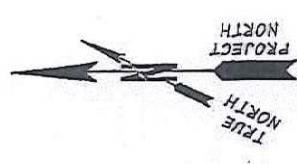
MATERIALS

- CONCRETE  
A. CAST IN PLACE CONCRETE SHALL BE CLASS 4,000
- CONCRETE REINFORCEMENT  
A. REINFORCEMENT  
ASTM A706  
B. CONCRETE COVER (PRIMARY REINFORCEMENT, STIRRUPS 1/2" LESS)  
1. 4" FOR SURFACES PERMANENTLY EXPOSED TO SALTWATER UNO  
2. 3" AT ALL OTHER LOCATIONS UNO  
C. LAP SPLICES  
CLASS B UNO
- CONCRETE ANCHORS  
A. CAST-IN STEEL ANCHORS (HOT DIP GALVANIZED)  
ASTM F1554, GR 36  
1. ANCHOR RODS  
AASHTO M291, GR A  
2. ANCHOR ROD WASHERS  
ASTM F426  
3. WELDED HEADED STUDS  
ASTM A108  
4. GALVANIZING  
A125 (AASHTO M111)
- STEEL FABRICATIONS (ALL STEEL SHALL BE PAINTED)  
A. W-SERIES SHAPES  
AASHTO M270 GR 50  
B. C, S, AND L-SERIES SHAPES  
AASHTO M270 GR 36  
C. PLATE  
ASTM A500, GR B, FY=48 KSI  
D. RECTANGULAR HSS  
ASTM A500, GR B, FY=42 KSI  
E. ROUND HSS  
ASTM A53, GRB, TYPE E OR S  
F. PIPE  
ASTM A325 (AASHTO M64, TYPE I)  
G. HIGH STRENGTH BOLTS  
1. NUTS FOR HIGH STRENGTH BOLTS  
AASHTO M291 GR C, CB, DH, D3  
2. WASHERS FOR HIGH STRENGTH BOLTS  
AASHTO M293  
H. MILD BOLTS  
ASTM A307 GR A  
I. NUTS FOR MILD BOLTS  
ASTM A563 GR A  
J. WASHERS FOR MILD BOLTS  
ASTM F444  
K. WELDING (AWS D1.1)  
E70XX ELECTRODES  
SEE SPECIFICATIONS  
L. PAINT SYSTEM  
ASTM A252, GR3, FY=48 KSI MIN.  
K. STEEL PIPE FILL
- STAINLESS STEEL FABRICATIONS  
A. PLATE  
ASTM A240, TYPE 316L  
B. BOLTS  
ASTM F898, TYPE 316  
C. NUTS  
ASTM F894, TYPE 316  
D. WASHERS  
ANSI B18.22.1, TYPE 316
- FISH SCREEN SHALL BE CONSTRUCTED OF STAINLESS STEEL PROFILE BAR MATERIAL SUPPLIED BY HENDRICK SCREEN COMPANY, OR APPROVED EQUAL. THE SURFACE WIRE SHALL BE B-65 WEDGE WIRE. THE SCREEN SLOT OPENING SHALL BE 0.069 INCHES WIDE. THE OPEN AREA FOR THIS SLOT OPENING SHALL BE 50%.

Released For Construction  
3/3/11 Paul Bennett, DOA  
3/4/11 AL, K-GD

FILE NAME IP_PWP-dms6337949854_hs_s_001.dgn	DATE 03-MAR-2011 07:39	DESIGNED BY J. HOLLERBACH	ENTERED BY J. HOLLERBACH	PROJ. ENGR. T. SCHNETZER	REGIONAL ADM. K. DAYTON	REV 0 - RELEASE FOR CONSTRUCTION	REVISION	DATE 03-04-11	BY TH	CONTRACT NO. 007826	LOCATION NO.	FED.AID PROJ.NO.	Kiewit General HNTB KPIFF	 Washington State Department of Transportation	SR 520 PONTOON CONSTRUCTION DESIGN-BUILD PROJECT PACKAGE B - SITE FACILITY IMPROVEMENTS	HS1 SHEET 248 OF 270 SHEET
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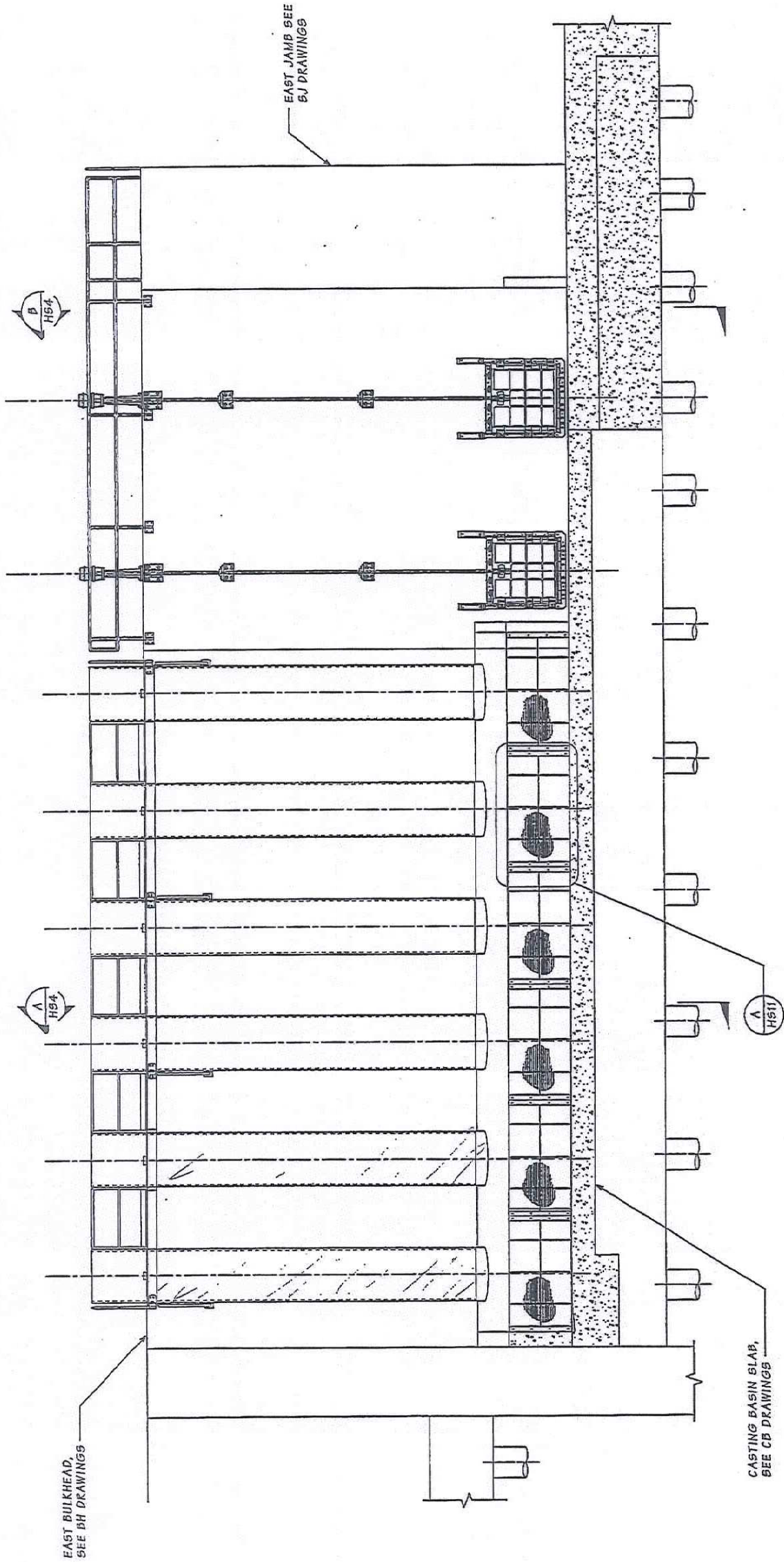




# HYDRAULIC CONTROL STRUCTURES ①.

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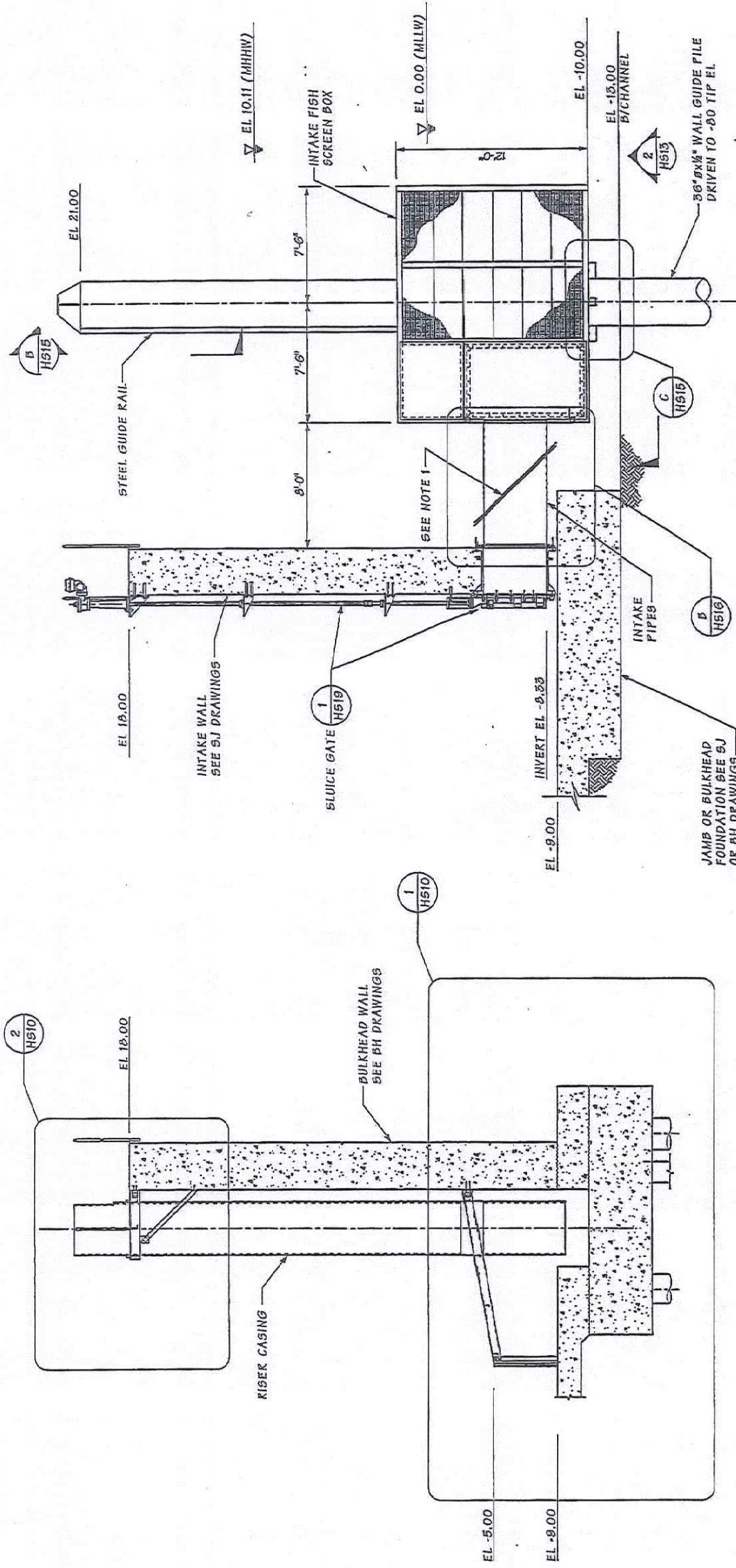
Released For Construction  
 3/3/11 Paul Brown D&M  
 3/4/11 ad, K-G D&M

A  
H52

NORTH ELEVATION - HCS

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DATE		02-MAR-2011		JOB NUMBER		007826		CONTRACT NO.		HS3	
DESIGNED BY		T. HOWARD		TH		DATE		BY		ELEVATION	
ENTERED BY		J. HOLLENBACH		TH		DATE		BY		ELEVATION	
CHECKED BY		E. DEBROECK		TH		DATE		BY		ELEVATION	
PROJ. ENGR.		T. SCHNETZER		TH		DATE		BY		ELEVATION	
REGIONAL ADM.		K. DAYTON		TH		DATE		BY		ELEVATION	
REV 0 - RELEASED FOR CONSTRUCTION		REVISION		TH		DATE		BY		ELEVATION	
Kiewit General HNTB Kpff		Washington State Department of Transportation		SR 520		PONTON CONSTRUCTION DESIGN-BUILD PROJECT		PACKAGE B - SITE FACILITY IMPROVEMENTS		ELEVATION	





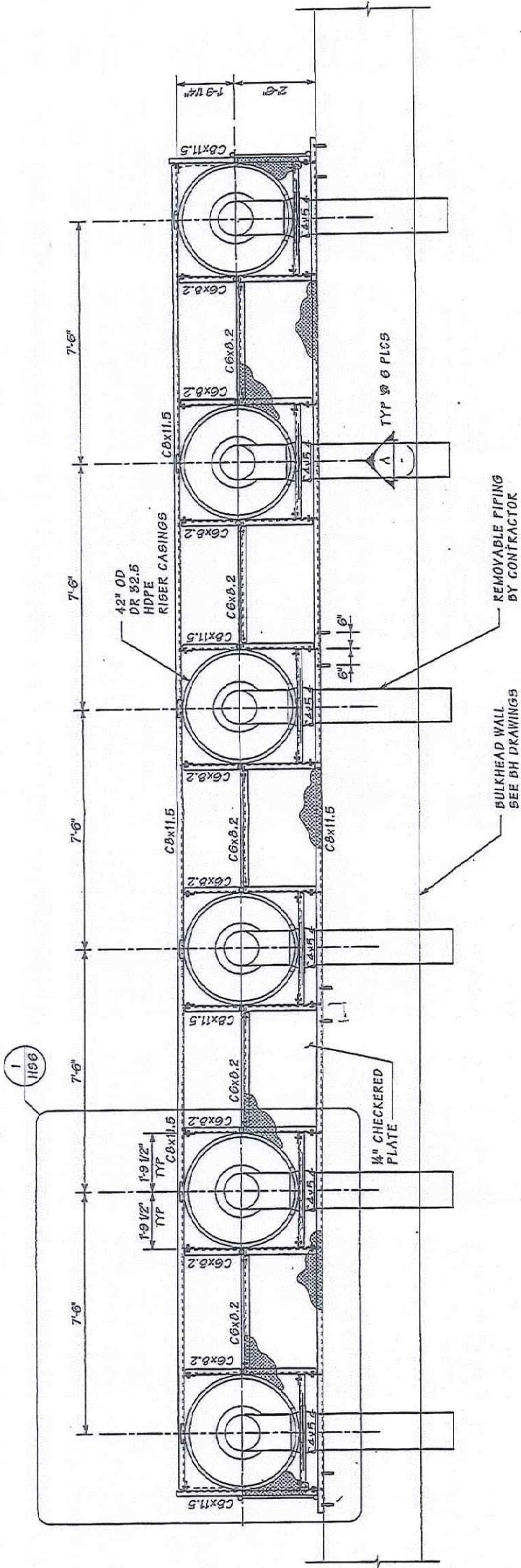
NOTES:  
1. WHEN INTAKE FISH SCREEN BOX IS NOT IN PLACE THE END OF EACH INTAKE PIPE SHALL BE SEALED WITH A COVER PLATE. SEE A FOR INTAKE COVER PLATE.

Released For Construction  
3/3/11 Paul Brown, DDM  
3/4/11 ad, K-GDM

SECTION A H52 H53  
SECTION B H52 H53

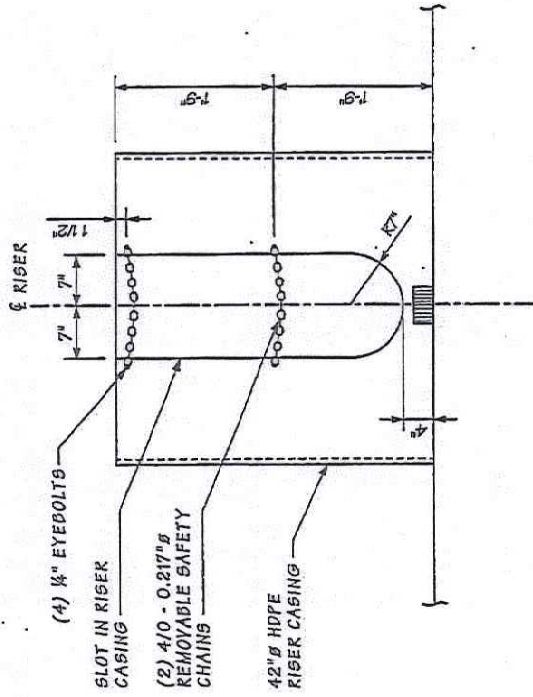
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FRAMING @ TOP OF BULKHEAD WALL

1  
H52



SAFETY CHAIN ELEVATION

A  
H50 H510

Released For Construction  
3/3/11 Paul Brannan, DDAM  
3/4/11 a.k. KGDm

FILE NAME	IP PWP:dms6337949854_hs_s 005.dgn
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DATE	02-MAR-2011
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DESIGNED BY	T. HOWARD
ENTERED BY	J. HOLLENBACH
CHECKED BY	E. DEBROECK
PROJ. ENGR.	T. SCHNEITZER
REGIONAL ADM.	K. DAYTON

REVISION	DATE	BY
REV 0 - RELEASE FOR CONSTRUCTION	03-04-11	TH

CONTRACT NO.	007826
JOB NUMBER	007826
LOCATION NO.	

FED.AID PROJ.NO.	
STATE	10 WASH
REGION NO.	

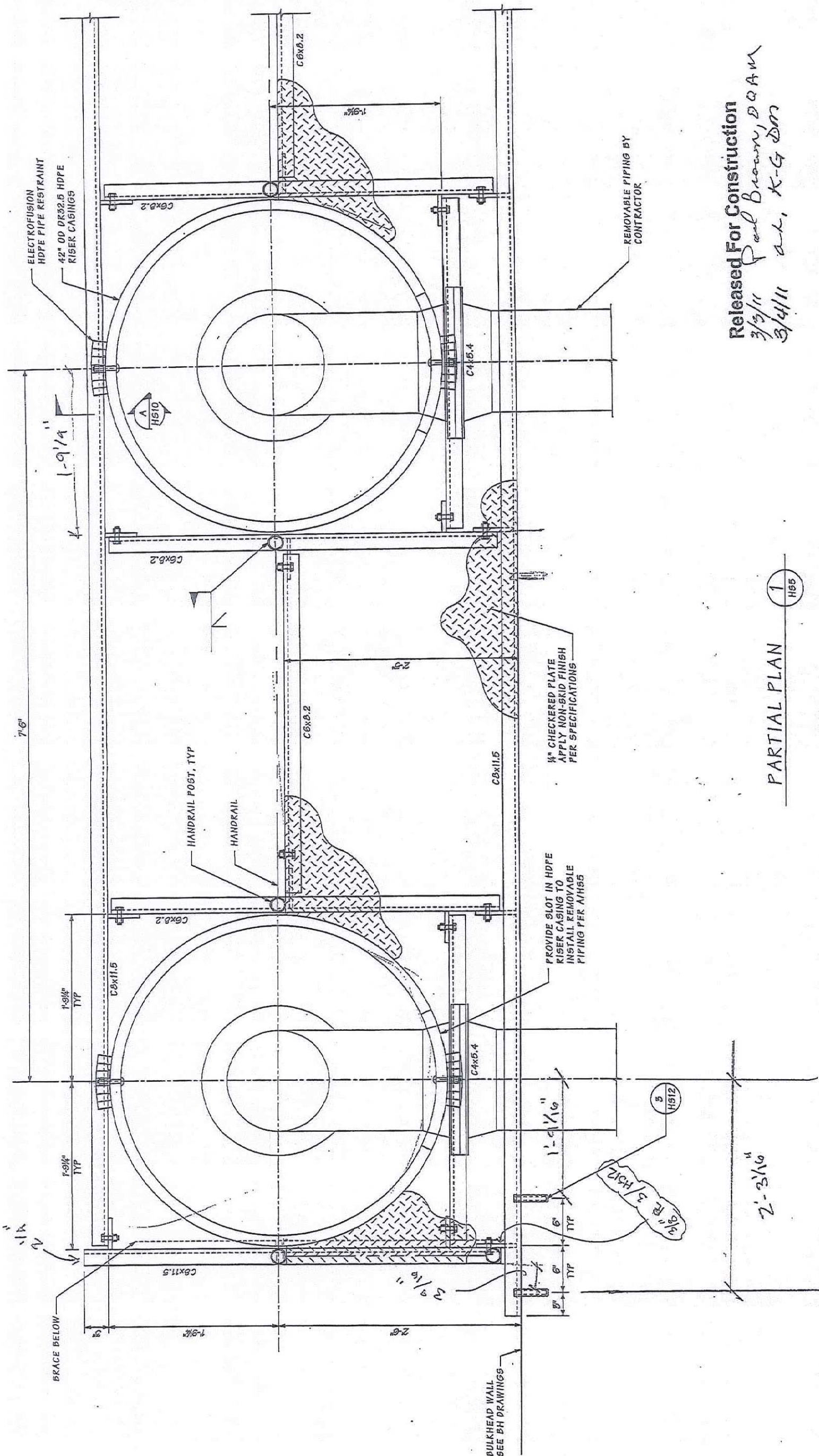


Washington State  
Department of Transportation

SR 520  
PONTON CONSTRUCTION  
DESIGN-BUILD PROJECT  
PACKAGE B - SITE FACILITY IMPROVEMENTS  
PLAN @ TOP OF BH WALL

H55  
SHEET  
252  
OF  
270  
SHEET



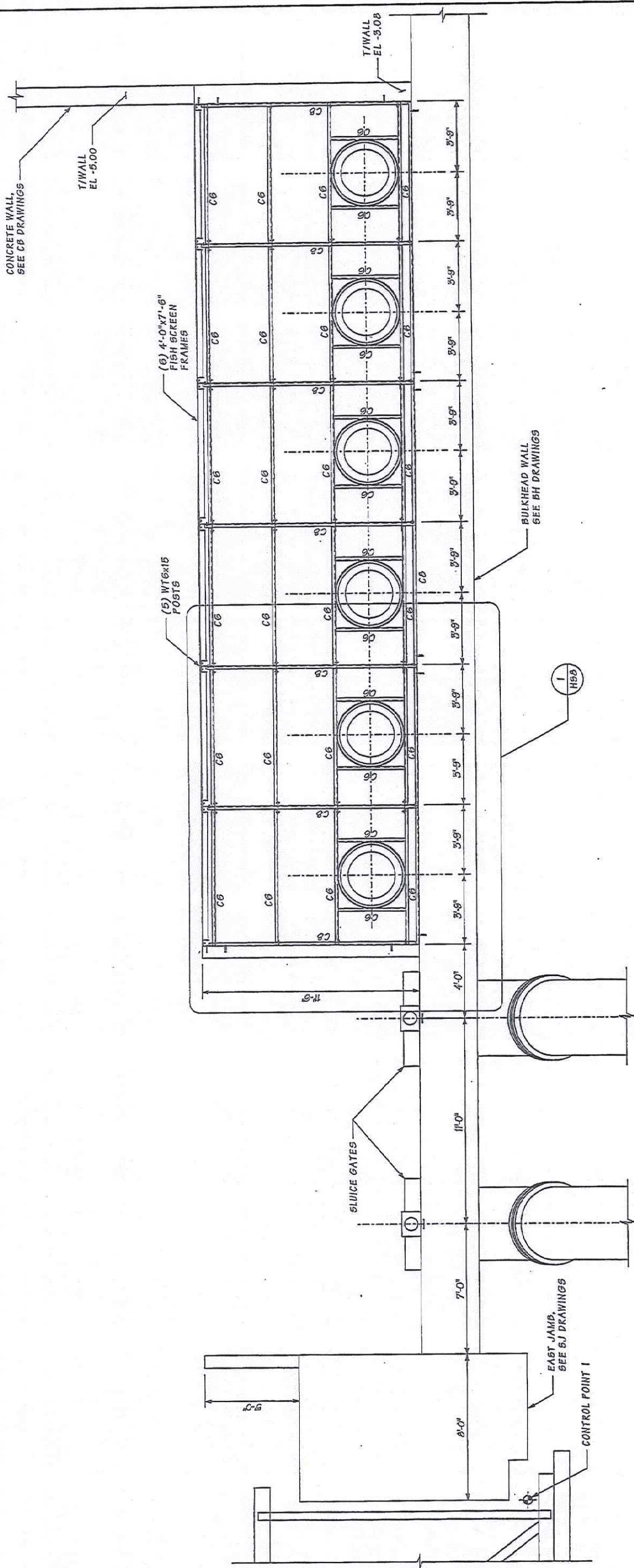


Released For Construction  
 3/3/11 Paul Brown, DDM  
 3/4/11 a.k. K-G DM

PARTIAL PLAN  
 1  
 H55

FILE NAME IP PWP:dms637949854_hs_s 006.dgn		REGION NO. 10		STATE WASH		FED.AID PROJ.NO.	
TIME 02-MAR-2011 08:24	DATE 02-MAR-2011	DESIGNED BY T. HOWARD	ENTERED BY J. HOLLENBACH	PROJ. ENGR. T. SCHNETZER	REGIONAL ADM. K. DAYTON	REVISION 0 - RELEASE FOR CONSTRUCTION	DATE 03-04-11
PLOTTED BY screey	DESIGNED BY T. HOWARD	ENTERED BY J. HOLLENBACH	PROJ. ENGR. T. SCHNETZER	REGIONAL ADM. K. DAYTON	REVISION 0 - RELEASE FOR CONSTRUCTION	DATE 03-04-11	TH
JOB NUMBER 007826		CONTRACT NO. 007826		LOCATION NO.		BY	
Kiewit General HNTB		k p f f		Washington State Department of Transportation		SR 520	
PONTON CONSTRUCTION DESIGN-BUILD PROJECT		PACKAGE B - SITE FACILITY IMPROVEMENTS		PLAN @ TOP OF BH WALL		HS6	
SHEET 253 OF 270		HS6		SR 520		PONTON CONSTRUCTION DESIGN-BUILD PROJECT	





Released For Construction  
3/3/11 Paul Brown, DQ And  
3/4/11 al, K-GDm

FRAMING PLAN @ SHED ROOF

C6 = C6x8.2  
C8 = C8x11.6

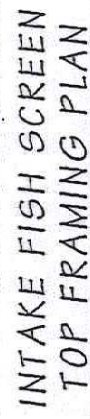
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H52

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REV 0 - RELEASE FOR CONSTRUCTION		03-04-11		TH		DATE		BY		CONTRACT NO. 007826		JOB NUMBER 007826		STATE 10 WASH		FED.AID PROJ.NO.	
LOCATION NO.		007826		007826		007826		007826		007826		007826		007826		007826	
Kiewit General HNTB kpf		Washington State Department of Transportation		SR 520		PONTON CONSTRUCTION DESIGN-BUILD PROJECT		PACKAGE B - SITE FACILITY IMPROVEMENTS		PLAN @ SHED ROOF		HS7		SHEET 254 OF 270		HS7	









**Kiewit  
General  
HNTB  
kpff**



Washington State  
Department of Transportation

SR 520

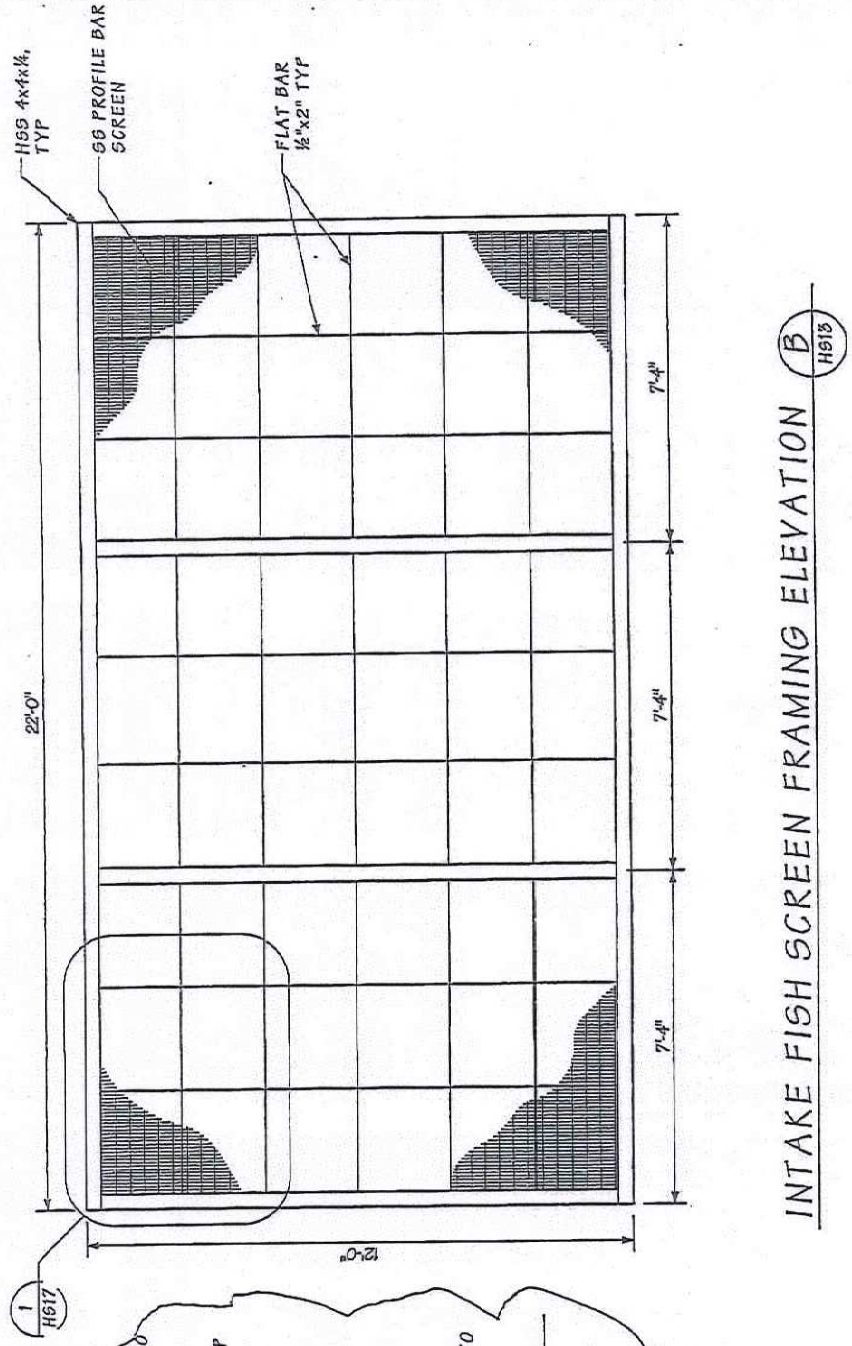
...  
**PONTON CONSTRUCTION  
DESIGN-BUILD PROJECT**

## FISH SCREEN PLANS

HS13

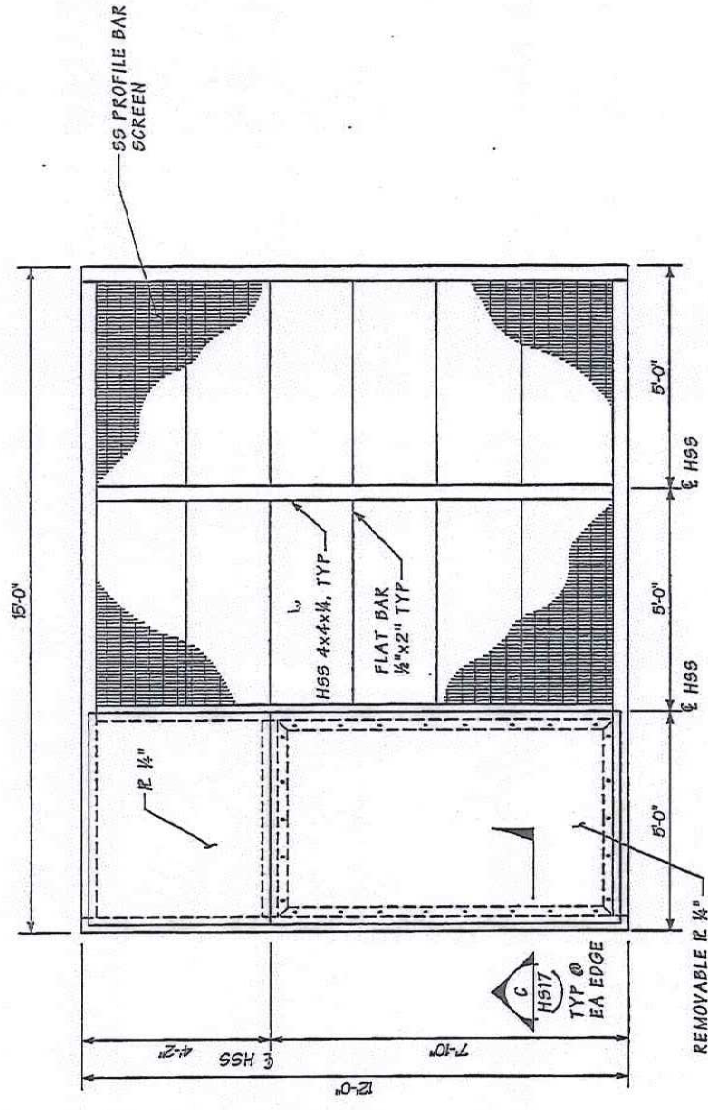
SHEET 260 OF 270 SHEET



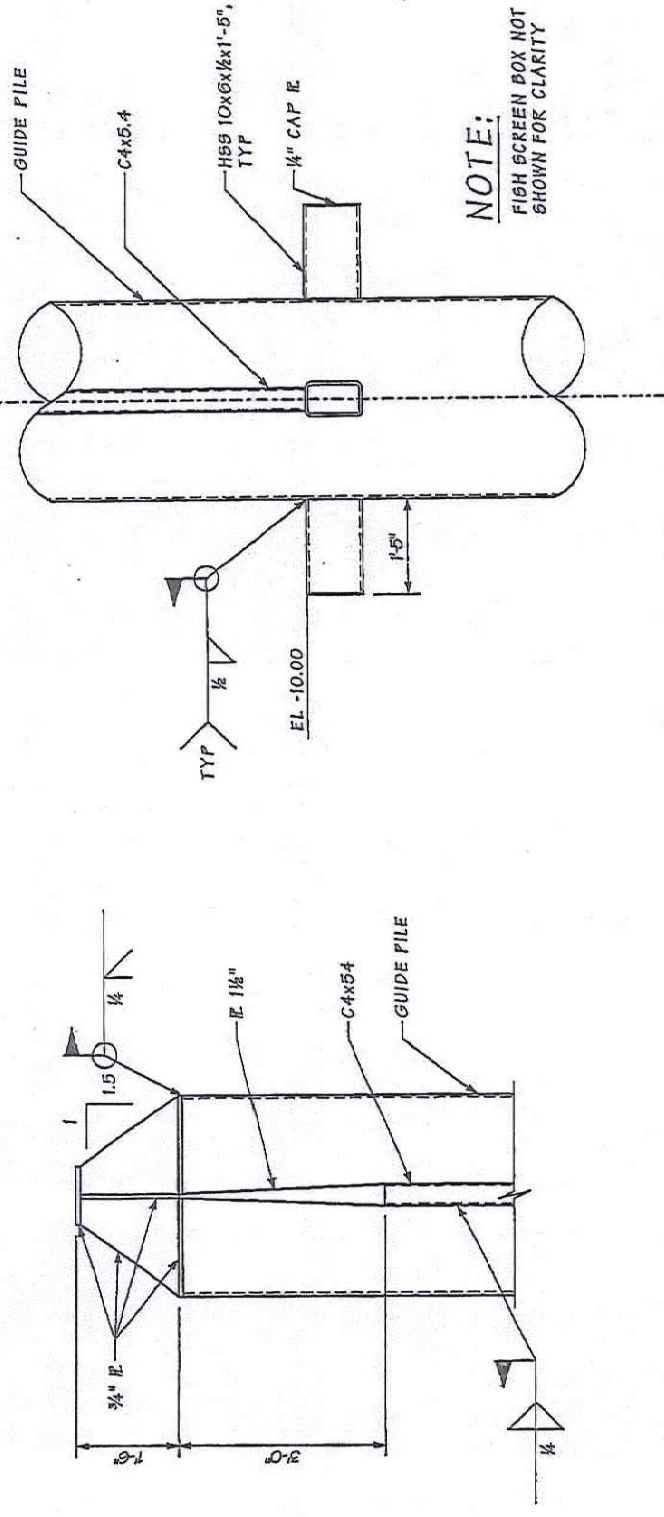


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<b>DATE</b>	02-MAR-2011						
<b>PLOTTED BY</b>	gcrcy						
<b>DESIGNED BY</b>	T. HOWARD						
<b>ENTERED BY</b>	J. HOLLENBACH						
<b>CHECKED BY</b>	E. DEBBROECK						
<b>PROJ. ENGR.</b>	T. SCHNETZER						
<b>REGIONAL ADM.</b>	K. DAYTON						
<b>REV 0 - RELEASED FOR CONSTRUCTION</b>							
<b>REVISION</b>							
<b>FED.AID PROJ.NO.</b>							
<b>MISION NO.</b>	<b>STATE</b>						
	<b>10 WASH</b>						
<b>JOB NUMBER</b>	<b>007826</b>						
<b>CONTRACT NO.</b>	<b>007826</b>						
<b>LOCATION NO.</b>							
<b>TH</b>	<b>03 04-11</b>						
<b>DATE</b>	<b>BY</b>						





A  
HS13



B H54

654

NOTE:  
FISH SCREEN  
SHOWN FOR

Released For Construction  
3/3/11 Paul Blevins DOM  
3/4/11 a.k. K-GDM



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General  
Contractors  
HNTB  
KPF**



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Department of Transportation

SR 520

ON THE  
PONTON CONSTRUCTION  
... DESIGN-BUILD PROJECT

**FISH SCREEN ELEV & DETAILS**

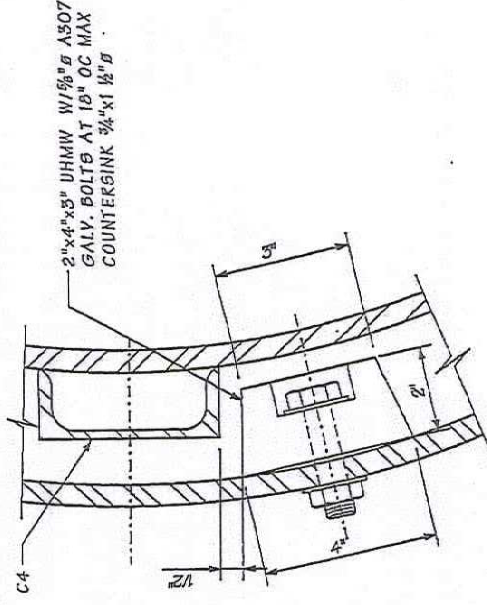
HS15

SHEET  
262  
OF  
270  
SHEET

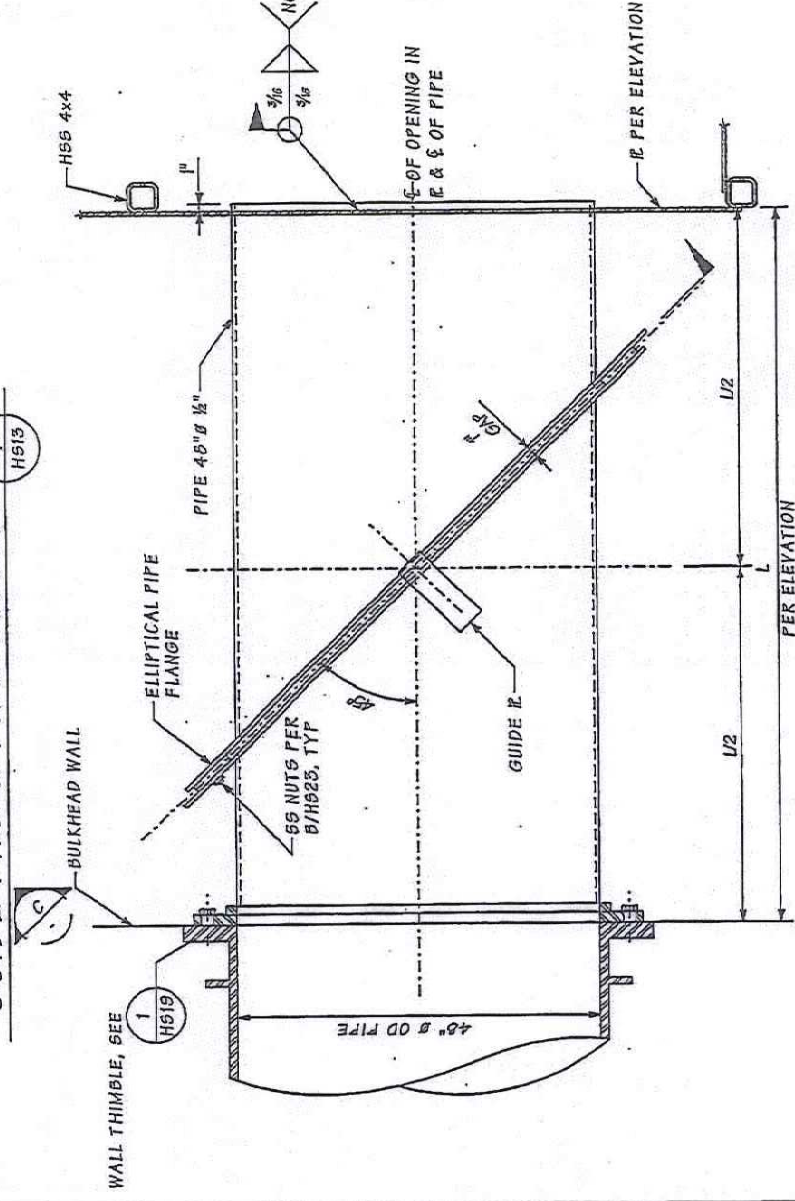
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DATE	02-MAR-2011		10	WASH
PLOTTED BY	gcarey		JOB NUMBER	
DESIGNED BY	T. HOWARD		007826	
ENTERED BY	J. HOLLENBACH			
CHECKED BY	E. DEBOECK			
PROJ. ENGR.	T. SCHNETZER		CONTRACT NO.	
PROJ. ADM.	K. DAYTON		007826	
	REV 0 - RELEASED FOR CONSTRUCTION	03-04-11	LOCATION NO.	
	REVISION	DATE	BY	



COVER E AND HSS  
FRAMING NOT SHOWN  
FOR CLARITY



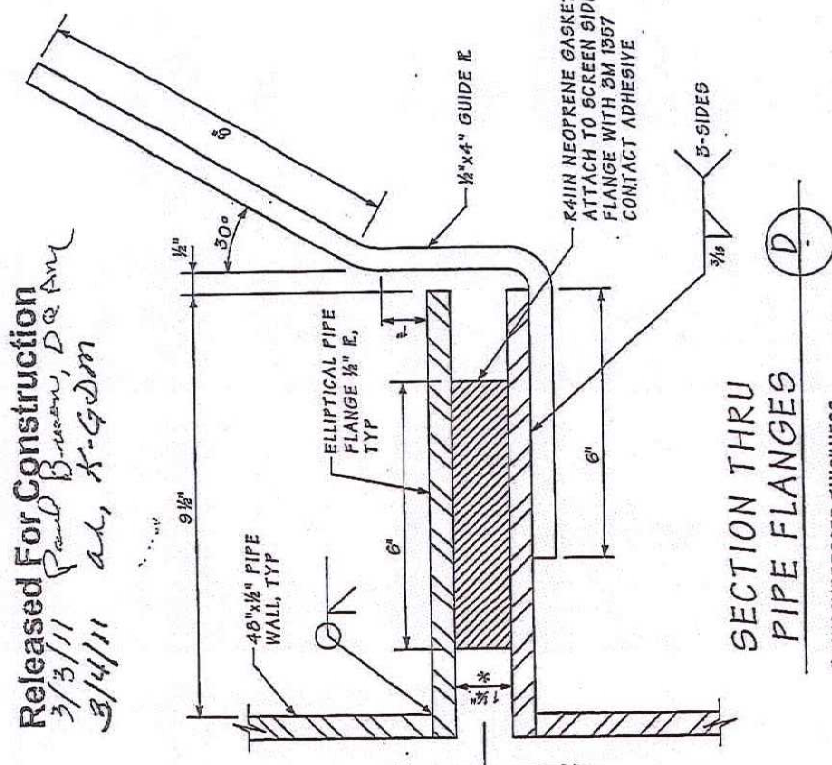
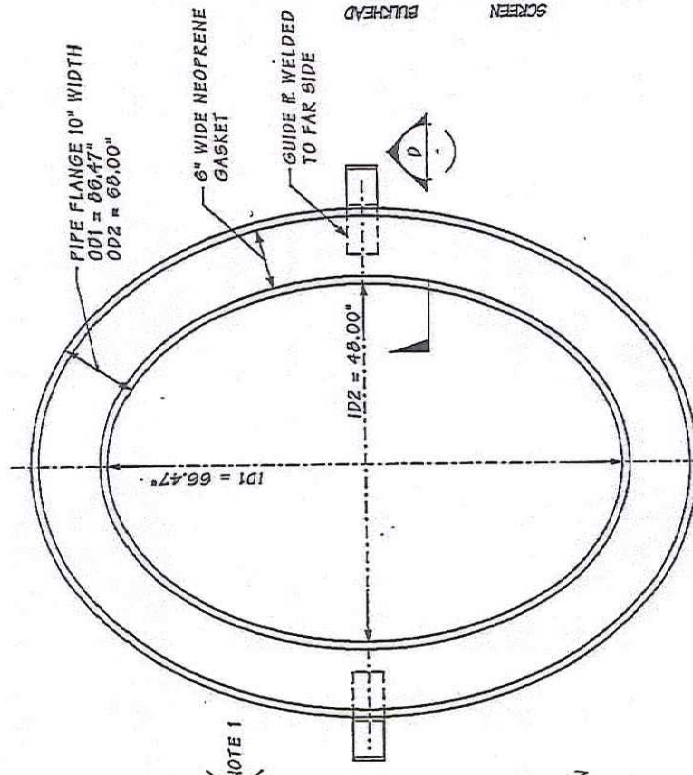
DETAIL



(B) H54 H514

NOTES:

1. INSTALL INTAKE FISH SCREEN BOX IN FURTHEST SOUTH POSITION AND TEST FIT ELLIPTICAL FLANGE SEATING PRIOR TO FINAL WELDING.



\* UNCOMPRESSED THICKNESS

Released For Construction  
3/3/11 Paul Brown, De An  
3/4/11 al, K-GDM

SECTION THRU  
PILE & PIPE SLEEVE

FILE NAME	IP_PWP:dmsc337049854_hs_a_016.dgn
TIME	02-MAR-2011 08:24
DATE	02-MAR-2011
PLOTTED BY	gcarey.
DESIGNED BY	T. HOWARD
ENTERED BY	J. HOLLENBACH
CHECKED BY	E. DESROECK
PROJ.ENGR.	T. SCHNETZER
REGIONAL ADM.	K. DAYTON
REV 0	

RELEASED FOR CONSTRUCTION REVISION	DATE	03-04-11	TH	REGION NO. STATE 10 WASH JOB NUMBER 007826 CONTRACT NO. 007826 LOCATION NO.	FED.AID PROJ.NO.

**Kiewit  
General  
HNTB  
kpf**



Washington State  
Department of Transportation

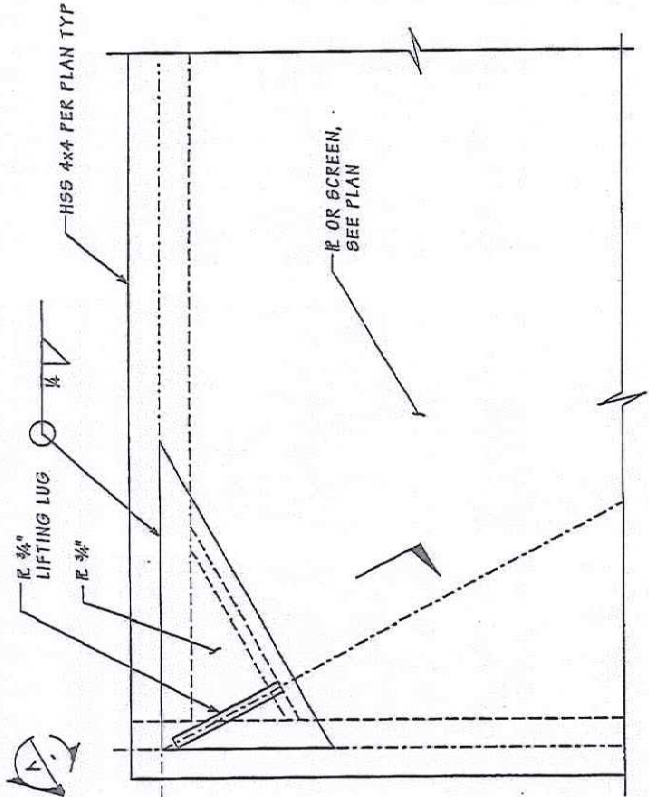
SR 520  
PONTON CONSTRUCTION  
DESIGN-BUILD PROJECT  
PACKAGE B - SITE FACILITY IMPROVEMENTS  
INTAKE FISH SCREEN DETAILS

HS16

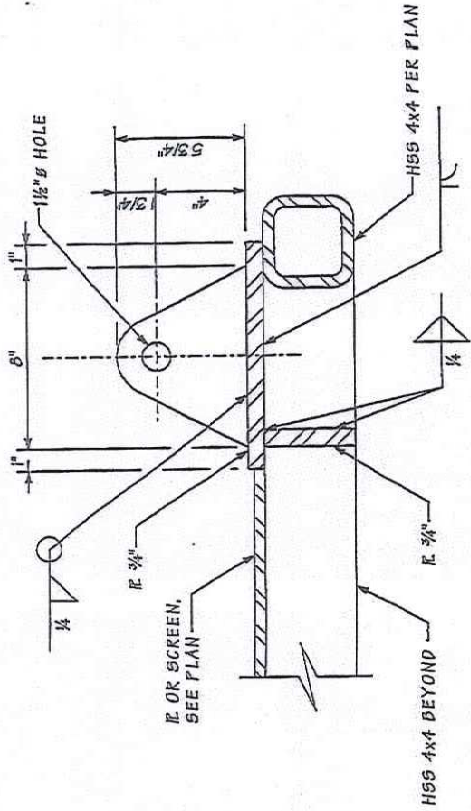
SHEET  
263  
OF  
270  
SHEET



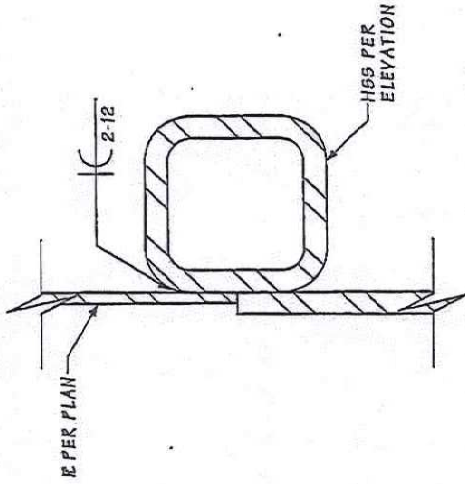
Released For Construction  
3/3/11 Paul Brown, DCAW  
3/4/11 dh, K-G DM



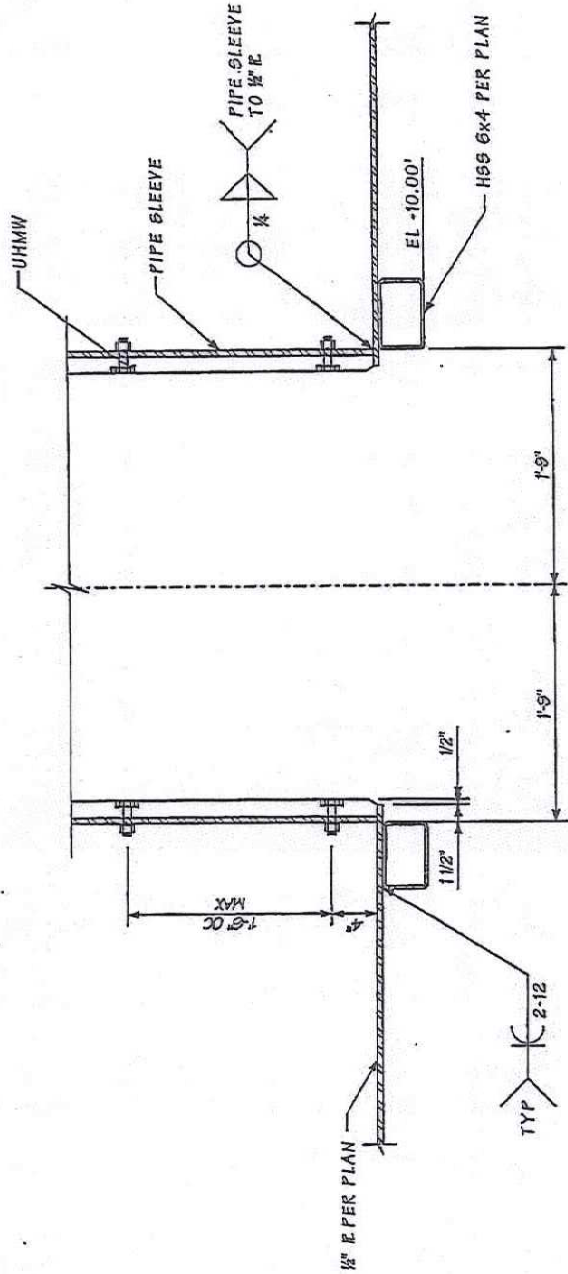
LIFTING LUG DETAIL 1 H513



SECTION THRU CORNER LIFTING LUG A



TYP B TO HSS CONNECTION B H514



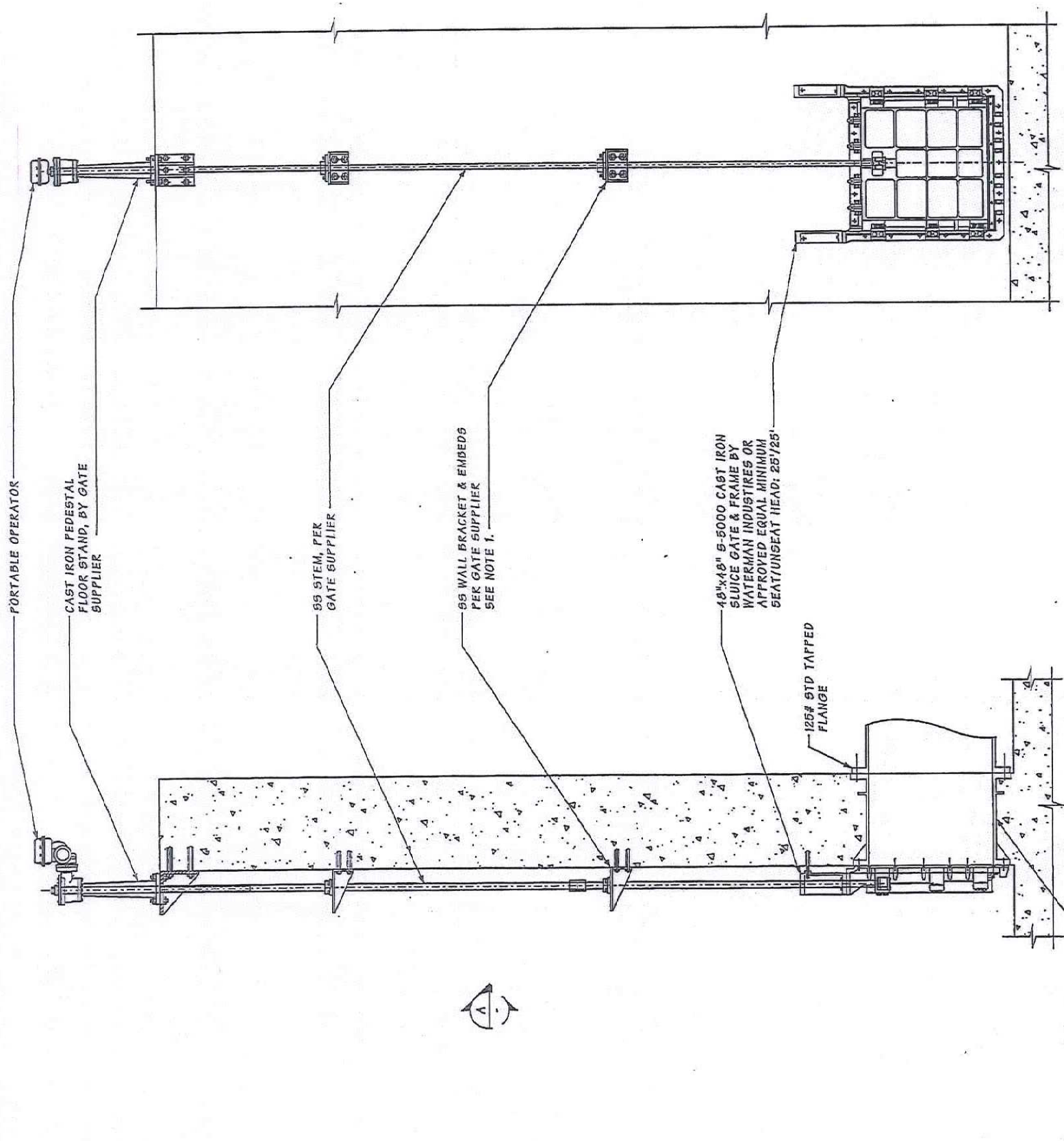
SECTION THRU PIPE SLEEVE/FISH SCREEN BOTTOM C H513

FILE NAME IP_PWP:dms6337949854_h5.s 016.dgn				SR 520				HS18
TIME	02-MAR-2011 08:24	REGION NO.	10	PONTON CONSTRUCTION				SHEET 265 OF 270
DATE	02-MAR-2011	STATE	WASH	DESIGN-BUILD PROJECT				
DESIGNED BY	T. HOWARD	JOB NUMBER	007826	PACKAGE B - SITE FACILITY IMPROVEMENTS				
ENTERED BY	J. HOLLENBACH	CONTRACT NO.	007826	INTAKE FISH SCREEN DETAILS				
CHECKED BY	E. DEBROECK	DATE	03-04-11					
PROJ. ENGR.	T. SCHNEITZER	BY						
REGIONAL ADM.	K. DAYTON	REVISION						
				Washington State Department of Transportation				



Released For Construction  
3/3/11 Paul Browning DQAM  
3/4/11 at. K-GDM

NOTE:  
1. SPACING & MOUNTING OF WALL BRACKETS  
VARIES BETWEEN SLUICE GATE MANUFACTURERS.  
CONTRACTOR SHALL COORDINATE PLACEMENT OF  
BRACKETS & EMBEDS



ELEVATION A

DETAIL 1

FILE NAME IP_PWP.dms637949954_10_s_019.dgn		FED.AID PROJ.NO.		SR 520		HS19	
TIME 02-MAR-2011 08:23	DATE 02-MAR-2011	REGION NO. 10	STATE WASH	PONTON CONSTRUCTION		SHEET 265 OF 270	
DESIGNED BY T. HOWARD	DESIGNED BY J. HOLLENBACH	JOB NUMBER 007826	CONTRACT NO. 007826	DESIGN-BUILD PROJECT			
CHECKED BY E. DEBROECK	CHECKED BY T. SCHNETZER	DATE 03-04-11	TH BY	PACKAGE B - SITE FACILITY IMPROVEMENTS			
REGIONAL ADM. K. DAYTON	REVISION	REV 0 - RELEASED FOR CONSTRUCTION		SLUICE GATE DETAILS			



1" Ø BALL VALVE, SS

1/2" Ø PLUG

1/2" Ø W/ 1/2" X 4" X 0.03" LIFTING EYE

1/2" Ø HOLE

1/2" Ø WELD

1" Ø SS WELD NIPPLE

ANGLE FLUSH W/ EDGE, TYP

20"

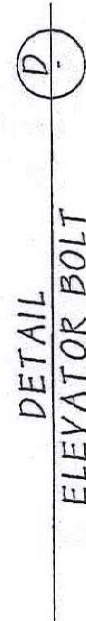
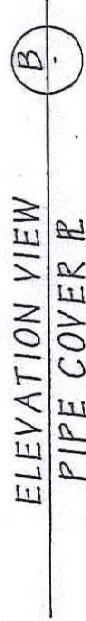
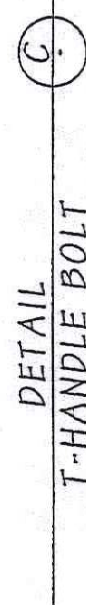
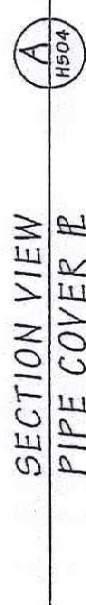
6"

5/16"

TYP

C

D

[illegible]

**Kiewit  
General  
HNTB  
kpff**



Washington State  
Department of Transportation

520

SK 320  
PONTON CONSTRUCTION  
DESIGN-BUILD PROJECT

DESIGN-BUILD PROJECT  
PACKAGE B - SITE FACILITY IMPROVEMENTS  
PIPE COVER PLATE DETAILS

HS23

SHEET  
270  
OF  
270  
SHEET



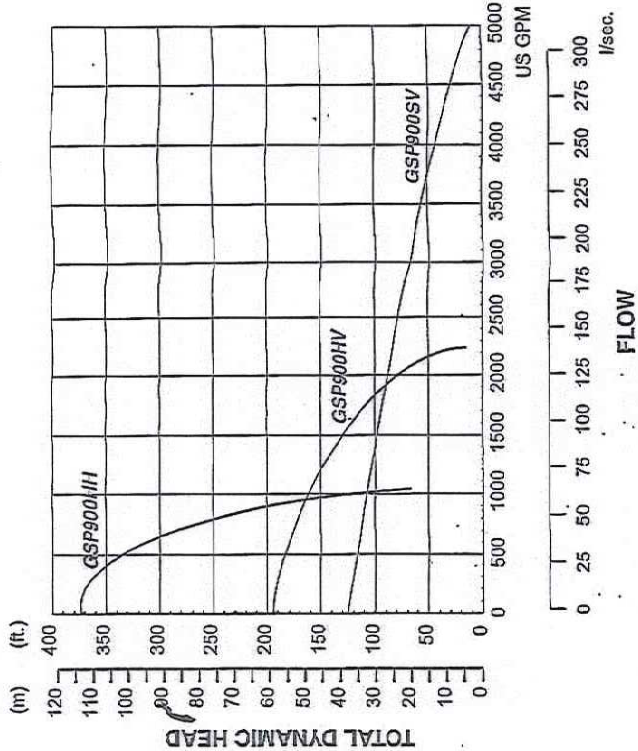
FLOAT OUT CHECKLIST	SR - 520 PONTON TEAM		
	Pre-Float & Casting Basin Activities		
	Cycle 4 Floatout		
PONTONS	Responsible Person	Notes	Completed (Sign)
Furnish tideboard(s) & draft boards	Neu		
Draft boards pontoon mounted referenced to pontoon benchmarks	Neu		
Pontoon B Work Activity checklist and Punchlist complete	Byron		
Pontoon C Work Activity checklist and Punchlist complete	Byron		
Pontoon D Work Activity checklist and Punchlist complete	Byron		
Pontoon E Work Activity checklist and Punchlist complete	Byron		
Pontoon BMW Work Activity checklist and Punchlist complete	Byron		
Pontoon DSW Work Activity checklist and Punchlist complete	Byron		
Cell Survey and Ballast Log (Leak Inspection) complete.	Neu		
Pontoon BMW	Neu		
Cell Survey and Ballast Log (Leak Inspection) complete.	Neu		
Pontoon DSW	Neu		
Pontoon B Hatch Sealing checklist complete	Byron		
Pontoon C Hatch Sealing checklist complete	Byron		
Pontoon D Hatch Sealing checklist complete	Byron		
Pontoon E Hatch Sealing checklist complete	Byron		
Pontoon BMW Hatch Sealing checklist complete	Byron		
Pontoon DSW Hatch Sealing checklist complete	Byron		
Pontoon Fabrication Complete Go/No Go	Byron		
Casting Basin			
Life Rings prepositioned on Pontoons	DiCrescentis		
Casting Basin cleaning complete	Jones	Dave Davies to also approve during walk	
Verify Radio Quantity	DiCrescentis		
Order Enough Lifevests for Float-Out	DiCrescentis		
Pump House Sealed	DiCrescentis	Dave Davies to also approve during walk	
Launch Coordination			
Pontoon coordination complete	DiCrescentis		
Monitor tides daily until Float-Out	Josh Norquist		
USCG, VTS, & Local Notice to Mariners	DiCrescentis		
Access during launch plan in-place	DiCrescentis		
Skiffs in-place	DiCrescentis		
Org Chart for launch, incl line handlers, tugs, etc.	DiCrescentis		
Pre-Activity Meeting	DiCrescentis		
Schedule for Launch in-place	DiCrescentis		
Mooring & Fendering in Graving Dock			
Install Temporary Bollards	DiCrescentis		
Tires/Fendering Installation on Pontoons	DiCrescentis		
Inventory of Mooring Lines	DiCrescentis		
Install Mooring Lines & Crane Mat Fenders	DiCrescentis		
Stage Yokohama Fenders in-place	DiCrescentis		
Lights plan	DiCrescentis		
Lights procure.	DiCrescentis		
Lights installed & in-place prior to launch	DiCrescentis		
Verify Fendering	DiCrescentis		
Naval Architect Approval of Graving Dock Moorings	Zankich		
Mooring and Fendering @ Port of Grays Harbor			
Mooring Plans for T-3/T-4 Complete	DiCrescentis		
Mooring Plans for T-3/T-4 Submitted	DiCrescentis		
Mooring Plans for T-3/T-4 approved	DiCrescentis		
Reversion for T-3/T-4 in-place	DiCrescentis		
Mooring Plans for T-1 Complete	DiCrescentis		



Mooring Plans for T-1 Submitted	D/Crescentis		
Mooring Plans for T-1 approved	D/Crescentis		
Reveration for T-1 in-place	D/Crescentis		
Workplans Prepared	D/Crescentis		
Mooring STS list; prepared	D/Crescentis		
Cycle 3 Floatout	SR - 520 PONTON TEAM		
Pre-Float & Casting Basin Activities			
Mooring STS procured	D/Crescentis		Completed
Skiffs Manned for line handler pickup	D/Crescentis		
Mooring Pre-positioned @ T-1	D/Crescentis		
Mooring Pre-positioned @ T-3/T-4	D/Crescentis		
Monitoring & Damage Control			
Develop lighting plan if needed	D/Crescentis		
Set up light plants per lighting plan if needed	D/Crescentis		
M & DC Work Plans prepared	Jones		
Damage Control Supplies & Equipment procured	Jones		
Damage Control Supplies & Equipment on hand	Jones		
Damage Control Supplies & Equipment pre-positioned	Jones		
Launching leak inspection set up	Jones		
Launching leak inspection work plan and org chart	Jones		
Tilt Monitoring Setup	Schmidt		
Procure penetration plates & gaskets	Jones		
Procure penetration plugs	Jones		
Penetration checklist complete	Jones		
Leak SW/AT team supplies procured	Jones		
Fall Protection at Hatches Ready	Rosenthal		
Calls "Air Tested"	Rosenthal		
Ballast & Stability			
Ballasting set up (Pre float out need)	D/Crescentis		
Pre-Launch Ballast Complete @ Pontoon BNW	D/Crescentis		
Pre-Launch Ballast Complete @ Pontoon DSW	D/Crescentis		
Pontoon BNW (heel, Trim, Draft) Check for Tow	D/Crescentis		
Pontoon DSW (heel, Trim, Draft) Check for Tow	D/Crescentis		
Towing			
Tow plans for launching complete	D/Crescentis		
Tow plans for launching submitted	D/Crescentis		
Tow plans for launching approved	D/Crescentis		
Towing agreements in place	D/Crescentis		
Towing gear on hand	D/Crescentis		
Naval Architect Inspection of Tow Gear Complete	Zankich		
FLOOD BASIN GO or NO GO	Byron		
FLOAT OUT PONTON 'B' GO or NO GO			
FLOAT OUT PONTON 'C' GO or NO GO			
FLOAT OUT PONTON 'D' GO or NO GO			
FLOAT OUT PONTON 'E' GO or NO GO			
FLOAT OUT PONTON 'BNW' GO or NO GO			
FLOAT OUT PONTON 'DSW' GO or NO GO			
Release For Pre Flood	K-G CM (Byron) :		
Release to Open Gates for Flood	FO Manager (D/Crescentis) :		
Release For Float Out	Naval Architect (Paul Zankich) :		

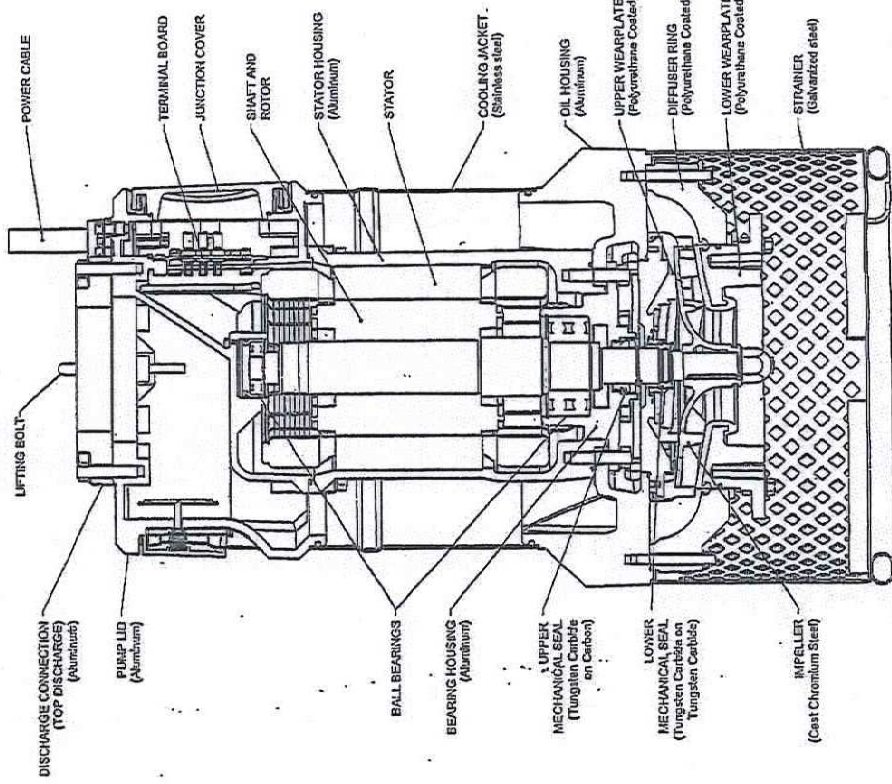


# GSP900 Sub-Prime® Performance Curves

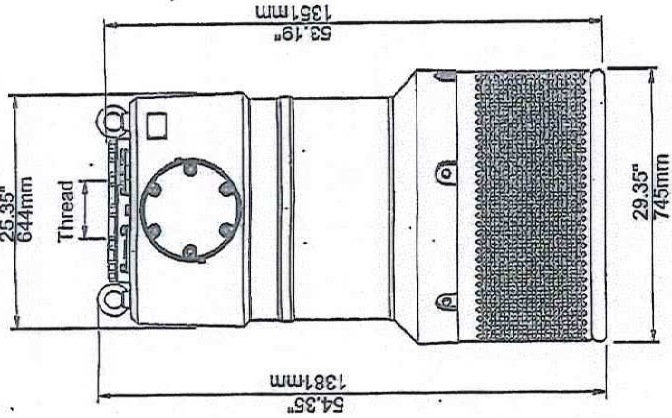


**WARNING:** Pumps are not designed for use in explosive atmosphere, flammable environments or for pumping volatile liquids.

## Design & Construction



## Dimensions



Discharge	HV	HH	SV
Female Thread	8" 200mm	6" 150mm	10" 250mm



\*GSP900 575 Volt Models CSA certification pending.

# godwin pumps®

One Floodgate Road, Bridgeport, NJ 08014, USA  
(856) 467-3636 • Fax: (856) 467-4841  
Queenington, Cirencester, Glos., GL7 5BX, UK  
+44 (0)1285-760271 • Fax: +44 (0)1285-760352  
E-mail: sales@godwinpumps.com  
www.godwinpumps.com

### BRANCH LOCATIONS:

Connecticut • Pennsylvania • New York • Ohio  
Illinois • Maryland • Virginia • West Virginia  
North Carolina • South Carolina • Georgia  
Florida • Texas Montana • California • Washington

Sub-Prime® and the color orange for pumps are registered trademarks of Godwin Pumps of America, Inc. Specifications and illustrations are subject to revision without notice.

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GPI/SL 091.1109

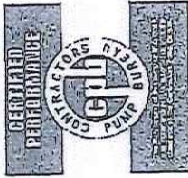


# Submersible Pump

## Electric Motor Driven

### Models S12A1-E140 460/3 and S12A1-E140 575/3

#### Size 12"



#### PUMP SPECIFICATIONS

Diffuser: Ductile Iron No. 80-60-03; Maximum Operating Pressure 86 psi (6.0 kg/cm<sup>2</sup>).\*  
Impeller: Ductile Iron No. 60-40-18.  
Suction Head: Gray Iron No. 30.  
Motor Housing: Aluminum Alloy No. 356-T6.  
Intermediate Bracket: Aluminum Alloy No. 356-T6.  
Seal Plate: Gray Iron No. 30.  
Motor Shaft: Stainless Steel Type 17-4 PH.  
Bearings: Upper, Open, Single Row Ball Bearing.  
Lower, Two Shields, Double Row Ball Bearing.  
Discharge Flange: Gray Iron No. 30.  
Gaskets: Cork with Nitrile Binder (NC710) and Vegetable Fiber.  
O-Ring: Buna-N.  
Wetted Hardware: Standard Plated Steel and Stainless Steel.  
Strainer: Urethane Coated Steel; 60% Open Area, 1.0" (25.4 mm) Square Openings.  
Holsling Ball: Urethane Coated Steel.

#### Standard Equipment

NEMA Type 3R Rainproof Control Box. Provides On-Off, Circuit Breaker and Motor Overload Protection. (See Section 130, Page 100.)  
Staging Adapter.

#### Optional Equipment

Liquid Level Control  
a. Turtle Type Pressure Activated Level Switch. (See Sec. 130, Page 150.)  
b. Float Activated Level Switch. (See Sec. 130, Page 150.)

#### MOTOR/CABLE SPECIFICATIONS

Motor: Oil Filled Enclosure; 140 H.P.; 1750 R.P.M.;

Three Phase: 460/575 Volt, 60 Hz,

160/128 Full Load Amps, 112 kW (Max.)

Power Cable: 6 Wire, Type GGC, 2/0 AWG(460V), 1 AWG (575V);

3 Power Conductors, 2 Ground Conductors and 1.

Ground Check.

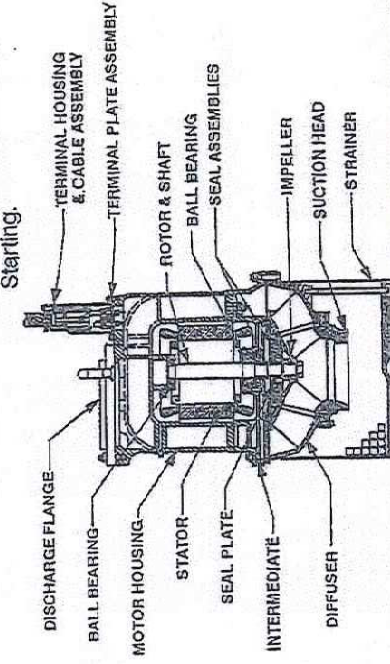
Nominal Length 50 Feet (15 m) Standard.

(Specify Alternate Length at Time of Order.)

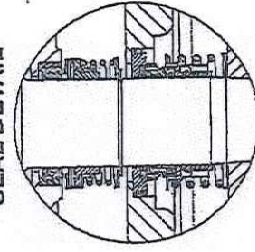
Recommended Generator Size: 200 kW Across-the-Line Start.

150 kW Reduced Voltage

Starting.



#### SEAL DETAIL



\* Consult Factory for Applications Exceeding Maximum Pressure and/or Temperature Indicated.



THE GORMAN-RUPP COMPANY • MANSFIELD, OHIO

GORMAN-RUPP OF CANADA LIMITED • ST. THOMAS, ONTARIO, CANADA

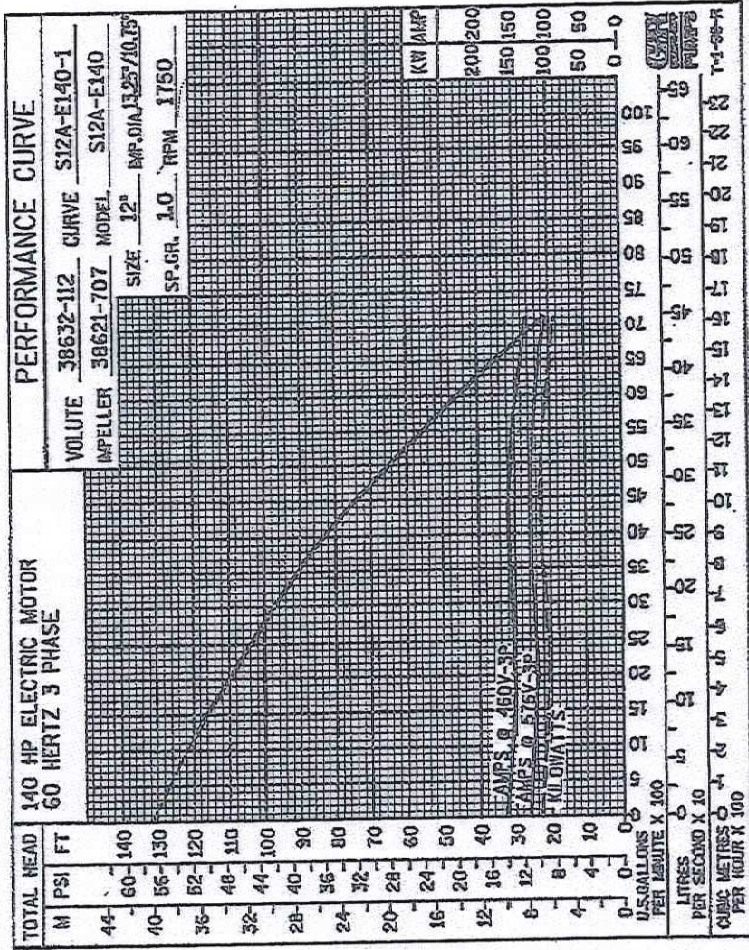
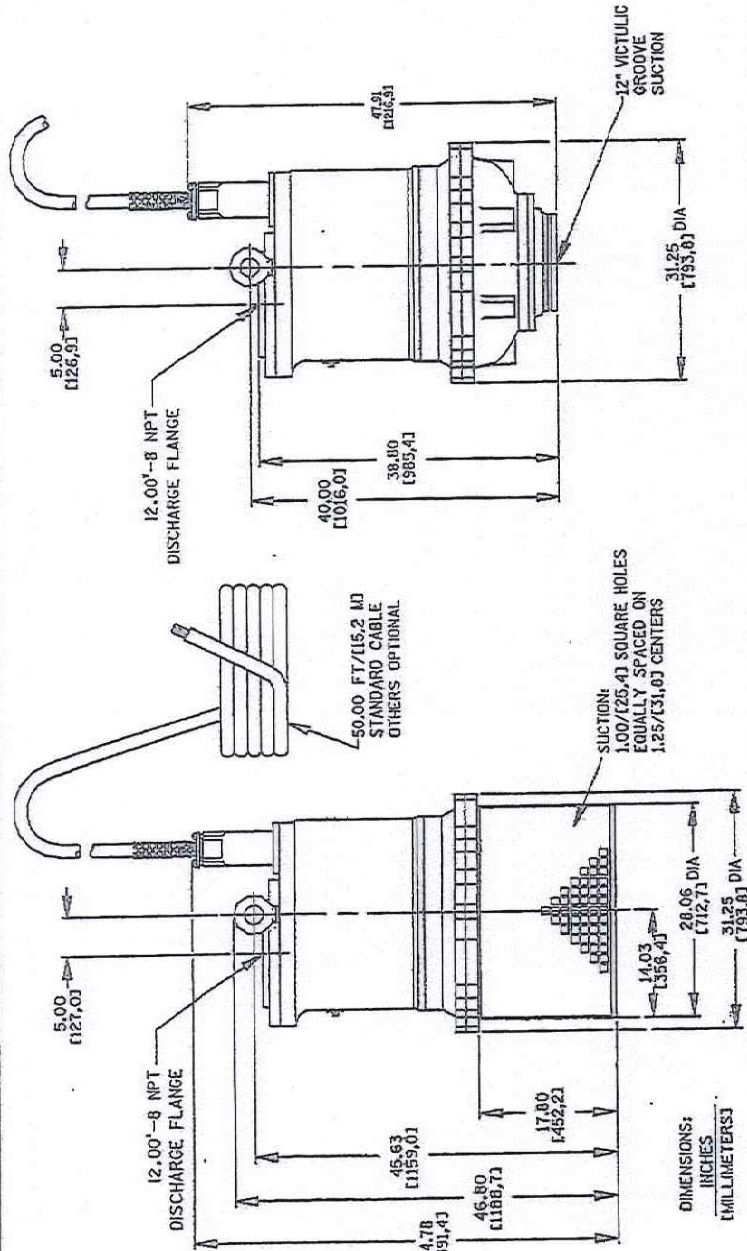
Specifications Subject to Change Without Notice

Printed in U.S.A.



Specification Data	APPROXIMATE DIMENSIONS and WEIGHTS	NET WEIGHT:	1485 LBS. (674 KG.)
		SHIPPING WEIGHT:	1840 LBS. (835 KG.)
		EXPORT CRATE:	58 CU. FT. (1,6 CU. M.)
SECTION 130, PAGE 1700			

NET WEIGHT: 1485 LBS. (674 KG.)  
SHIPPING WEIGHT: 1840 LBS. (835 KG.)  
EXPORT CRATE: 58 CU. FT. (1.6 CU. M.)



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**Specifications Subject to Change Without Notice**

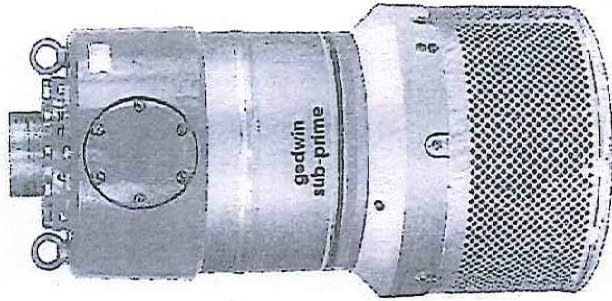
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4-1/2" FREQUENCY DRIVE (OD)  
3/4" Soft Start

# GSP900 Sub-Prime® Electric Submersible Dewatering Pumps

The line of Godwin Sub-Prime® GSP electric submersible pumps is designed for large dewatering applications requiring high head or high volume. Specifically, the GSP900 is capable of flow rates to 5,072 gpm (320 l/sec.) and discharge heads to 361 feet (110M). Like the small dewatering and trash handling models in the Sub-Prime line, these large dewatering submersible pumps are suited to tough construction, mining and industrial applications. They feature a slim-line design ideal for fitting into confined spaces and rugged construction for longer life, specifically a cast chromium steel impeller and heavy duty polyurethane coated adjustable wear parts. The GSP900 also features oil bath tandem mechanical seals for dry running and extra protection against leakage.



## Features

- Convenient top discharge
- Compact slim-line design
- Oversized power cable
- High performance submersible motor
- Oversized, heavy duty ball bearings
- Oil bath tandem mechanical seals -- Tungsten Carbide on Tungsten Carbide primary seal
- Cast Chromium Steel Impeller and heavy duty polyurethane coated adjustable wearparts
- Lightweight aluminum and corrosion resistant stainless steel cooling jacket
- Dry running capabilities
- Optional manual and automatic control panels available

## Specifications Three-Phase Models

	HV	Model HH	SV
HP (kW)	90.0 (67.1)	90.0 (67.1)	90.0 (67.1)
Max. Flow	2,220 gpm 140 l/sec.	1,060 gpm 67 l/sec.	5,072 gpm 320 l/sec.
Max. Head	190' 58M	361' 110M	121' 37M
Discharge	8" (200mm)	6" (150mm)	10" (250mm)
Cable	65' (20M)	65' (20M)	65' (20M)
RPM	1750	3500	1750
Max. Temp.	103°F (40°C)	103°F (40°C)	103°F (40°C)
PH Range	5.0-8.0	5.0-8.0	5.0-8.0
Voltage*	460, 575	460, 575	460, 575
Phase	3	3	3
Amps	104, 83	99, 79	101, 81
Hertz	60	60	60
Weight	1,190 lbs. 540 kg.	1,190 lbs. 540 kg.	1,190 lbs. 540 kg.
Max. Solids	.5" (13mm)	.5" (13mm)	.5" (13mm)
Max. Sub.	65' (20M)	65' (20M)	65' (20M)



godwin pumps®

HV = High Volume  
HH = High Head  
SV = Super High Volume

\*GSP900 575 Volt Models CSA certification pending.



GODWIN POWER GENERATORS

		G20kW-S	GHP26kW-R	GHP35kW-R	GHP45kW-R	GHP60kW-R	GHP85kW-R	GHP80kW-R								
									GHP100kW-R	GHP115kW-R	GHP140kW-R	GHP150kW-R	GHP185kW-R	GHP250kW-R	GHP255kW-R	GHP325kW-R
POWER OUTPUT																
Three Phase - Prime (kW)	18	27	34	46	59	67	80		97	119	144	152	190	233	256	327
Amps 480V Prime Rating	28	41	52	69	89	101	120		146	179	217	229	285	350	385	492
Amps 480V Standby Rating	30	45	57	77	99	112	132		161	197	238	251	315	386	425	539
Single Phase - Prime kW	15	26	33	45	56	62	72		95	117	142	150	-	-	-	-
Amps 240V	63	108	138	188	233	258	300		396	488	592	625	-	-	-	-
AC DISTRIBUTION																
Main Breaker Amps	90	125	200	225	300	300	400		450	600	700	700	800	1,200	1,200	1,600
Voltage Selection	3 Position Padlockable Switch	3 Position Padlockable Switch	3 Position Padlockable Switch	3 Position Padlockable Switch	3 Position Padlockable Switch	3 Position Padlockable Switch	3 Position Padlockable Switch	3 Position Padlockable Switch	3 Position Padlockable Switch	3 Position Padlockable Switch	3 Position Padlockable Switch	3 Position Padlockable Switch	Link/Reconnect Board	Link/Reconnect Board	Link/Reconnect Board	Link/Reconnect Board
ENGINE																
HP @ Prime @1800 (rpm)	31.5	43	53	72	91	102	122		150	180	216	228	286	353	422	489
Fuel Tank Volume gal	56	66	106	113	147	147	147		342	342	342	342	360	480	480	616
Fuel Consumed Prime (gal/hr)	1.8	2.6	3.0	4.0	5.6	5.6	6.2		7.7	9.8	10.9	11.0	15.2	16.9	17.9	21.1
Approximate Run Time hrs @ Prime	31.00	25.00	32.00	25.00	24.00	24.00	22.00		40.00	32.00	29.00	28.00	21.00	26.00	24.00	27.00
SIZE & WEIGHT																
Skid Mounted L x W x H (in)	N/A	83X35X52	95X35X56	95x35x56	96x38x62	96x38x62	96x38x62		132x50x73	132x50x77	132x50x77	132x50x77	132x50x77	156x60x90	156x60x90	175x60x96
Dry Weight (lbs)	N/A	2,074	2,537	2,415	3,438	3,563	3,549		6,206	6,409	6,765	6,765	7,330	8,860	8,860	1,275
OPTIONAL TRAILER																
Trailer Mounted L x W x H (in)	105x68x56	150x57x67	143x57x72	143x57x72	158x60x84	158x60x84	158x60x84		210x86x90	210x86x93	210x86x93	210x86x93	210x86x93	231x102x110	231x102x126	250x102x116
Dry Weight (lbs)	1,640	2,594	3,057	2,930	4,173	4,298	4,248		7,602	7,805	8,705	8,705	9,270	10,860	11,763	16,000

